THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 152, NO. 13 CHICAGO, ILLINOIS JULY 25, 1953

COPYRIGHT, 1953, BY AMERICAN MEDICAL ASSOCIATION

SOLITARY CIRCUMSCRIBED LESIONS OF THE LUNG

STUDY OF 156 CASES IN WHICH RESECTION WAS PERFORMED

Robert T. Hood Jr., M.D., C. Allen Good, M.D., O. Theron Clagett, M.D.
and
John R. McDonald, M.D., Rochester, Minn.

The importance of a solitary circumscribed mass in the lung has attracted increasing recognition in recent years. As a result of the extended use of roentgenologic examination of the chest, detection of these lesions is now commonplace. Advances in thoracic surgery have resulted in an effective means of definitively managing these lesions. As a consequence, complacency is no longer justifiable on the part of an attending physician who discovers such a lesion with its recognized malignant potentiality.

Circumscribed mass lesions of the lung are generally peripheral in location with respect to the pulmonary hilus. Because of this, important clinical problems in management and diagnosis arise. In the first place, symptoms develop less commonly and at a later stage than those caused by lesions lying close to a central bronchus. Consequently, it is more difficult to impress on the patient the importance of assuming an active approach toward the management of these frequently asymptomatic lesions. Second, the peripheral location of the lesion renders it inaccessible to direct bronchoscopic visualization and frequently reduces the tendency for the production of sputum containing exfoliated cells or significant organisms. For these reasons, important diagnostic aids available for the study of most diseases of the chest are ineffective for the investigation of solitary circumscribed lesions. The problem confronting the clinician is, therefore, a complex one. On the one hand, the possibility is ever present that the rounded shadow may represent a malignant process in a relatively early and operable stage. On the other hand, recourse to exploratory operation should never supplant simpler, less hazardous diagnostic measures. What then should be the clinician's policy with regard to these lesions? What diagnostic procedures are indicated? To what extent should preoperative diagnostic studies be pursued? What clinical features of a circumscribed mass increase the suspicion of malignancy? Finally, under what circumstances should exploratory thoracotomy be advised?

Answers to these questions can be obtained only by a comprehensive study of a large and varied group of solitary mass lesions of the lung. In an attempt to formulate a working policy applicable to all patients with such lesions, the material available to us at the Mayo Clinic has been reviewed in detail. All cases of surgically removed solitary circumscribed lesions without regard to size, status of preoperative diagnosis, or presence of respiratory symptoms constitute the basis of this study. It is our feeling that a true evaluation of various diagnostic procedures and a sound basis for dependable advice regarding operation can best be obtained from the study of all circumscribed lesions rather than by a study of a limited group of them restricted as to preoperative diagnosis, size, or symptomatology.

MATERIAL AND METHOD OF STUDY

The records of the cases for this study were obtained from the files of the Mayo Clinic after the chest roentgenograms of the 1,355 patients who underwent pulmonary resection during the period January, 1940, through June 30, 1951, were reviewed. Only those cases in which actual excision of the entire mass was carried out were studied, since only those cases provided complete pathological material for adequate study. Cases were selected solely on the basis of the roentgenographic appearance of the lesion. For qualification of a lesion as a circumscribed mass it had to possess the following characteristics. 1. It had to appear to be situated in the substance of the lung. 2. It had to constitute the only significant pathological change in the pulmonary fields. 3. It could not be associated with obstructive changes in the lung peripheral to the mass. 4. It could not display cavitation.

The size of the lesion, the sharpness and regularity of outline, the position in the pulmonary field, and the presence or absence of calcium were not factors determining the selection. While many authorities have observed more rigid qualifications for circumscribed lesions than these, the establishment of such qualifications necessarily in-

---

From the Mayo Clinic.

volves the use of arbitrarily set limits, and the wisdom and practicality of such selection is a matter of considerable doubt.

Naturally, with the inclusion of such a wide diversity of lesions, the appearance of the roentgenographic shadows varied greatly. The smallest shadows represented both benign and malignant lesions, as did the large shadows. Between these extremes in size, all gradations of size and a wide variety of shapes, densities, and sharpness of outline were encountered.

The records of these patients were reviewed in detail. Particular attention was directed toward the history of previous pulmonary disease and other systemic disease capable of producing pulmonary manifestations. The laboratory examinations carried out on these patients were studied to determine their diagnostic worth in evaluating the pulmonary lesion. These examinations included specific diagnostic procedures, such as the cytological and bacteriological examination of the sputum and bronchial washings. The findings obtained by bronchoscopic examination were studied critically. The pathological findings at the time of operation and the indications for the various operative procedures were reviewed. Microscopic sections from the excised tissue were reexamined to confirm the original diagnosis. Many of the tissues were studied bacteriologically, and the results of these studies were available for this review. Based on the definitive diagnosis established in the surgical, pathological, and bacteriological laboratories, the information obtained from the various preoperative studies was finally evaluated in an attempt to formulate a working policy for the clinical investigative management of these patients.

TABLE 1.—*Pathological Classification of Solitary Circumscribed Lesions of the Lung*

Lesion	Cases		%	
Malignant neoplasms				
Bronchogenic carcinoma	25		16	
Bronchial adenoma	12		7.7	
Fibrosarcoma	1		0.6	
Metastatic malignant lesion	17		10.9	
Total		55		35.3
Benign neoplasms				
Hamartoma	25		16	
Mesothelioma	3		1.9	
Thymoma	1		0.6	
Hemangioma	1		0.6	
Inflammatory				
Granuloma	65		41.7	
Chronic pneumonitis	1		0.6	
Chronic abscess	1		0.6	
Miscellaneous				
Bronchial cyst	4		2.6	
Total		101		64.7
Total	156			

PATHOLOGICAL AND BACTERIOLOGICAL FEATURES

The distribution of the cases according to the pathological classification of the lesion is summarized in table 1. In 85 cases (about 54%), the shadow represented a neoplastic process, while, in 67 cases (nearly 43%), the lesion resulted from inflammation. In the remaining cases, a bronchial cyst was found. The commonest neoplastic lesion was bronchogenic carcinoma; this was encountered in 16% of the total series. Twelve of the lesions (7.7%) were adenomas of the bronchus. Hamartomas were encountered in 25 cases, a frequency similar to that of bronchogenic carcinoma. Metastatic lesions, including carcinomas and sarcomas, were responsible for 10.9% of the lesions. Three of the solitary lesions were mesotheliomas. Of the two remaining neoplastic lesions, one was a hemangioma, and the other presented microscopic evidence suggestive of an intrapulmonary thymoma.

The incidence of malignancy among the neoplastic lesions was impressive. Nearly 65% of the neoplastic nodules, approximately 35% of the lesions in the entire group of cases, were malignant. Because of the recognized potentiality of bronchial adenoma to metastasize, this lesion was included in the malignant group.

With two exceptions, the inflammatory lesions presented the microscopic picture of a granulomatous process. In the granuloma group, there were cases in which the causative agent was bacteriological, mycotic, or chemical in nature or in which the cause was an irritant, the specific nature of which remained undetermined. The term "tuberculoma" was not applied to any group of these granulomatous lesions, since the exact incidence of tuberculomas remains a matter for speculation. Lesions from which the tubercle bacillus are isolated are undoubtedly tuberculomas in the true sense of the word but, most likely, a large proportion of the group of indeterminate granulomas represents processes caused by the same agent that has since lost its demonstrable viability. Thus, to limit the application of the term "tuberculoma" to the bacteriologically active group of lesions would be misleading, just as its application to the total group of granulomas would be without basis.

The lesions in the remaining four cases were bronchial cysts. The difficulty of accurately determining the precise nature, whether developmental or inflammatory, of these lesions led to their classification as a miscellaneous group.

Pathological examination of the excised tissue was made by the frozen tissue technique immediately after the tissue was received in the laboratory. Confirmation of the diagnosis was established on the following day by examination of the fixed tissue sections. The one limitation that was applied equally to the pathological examination of both the fixed and the frozen tissues was the inability of the pathologist to determine the precise causative basis for the granulomatous lesions. For this reason, bacteriological studies were performed on excised tissue in most cases of granulomatous lesions.

Fifty-three of the 65 granulomatous lesions were examined bacteriologically, and pathological organisms were isolated in 11. The commonest organism was the tubercle bacillus, which was found in seven cases. Coccidioides immitis was isolated in three cases and Brucella suis in one case. The lesions from which these organisms were isolated all showed histological evidence of tissue activity; however, by no means did all the histologically active lesions yield a pathological organism after bacteriological study.

The histological picture in two of the lesions was that of a lipoid granuloma. Further chemical studies of the tissue in these cases revealed the irritant to be liquid petrolatum in one case and oil from an endogenous source in the other.

AGE AND SEX

The youngest patient in this study was 6 years of age and the oldest was 69 (table 2). As would be anticipated, patients with bronchogenic carcinoma were older than those in the other large groups. The youngest patient with bronchogenic carcinoma was 36 years of age, and more of the patients with this lesion were in the age group from 51 to 60 years than in any other decade. Patients with bronchial adenoma had a similar age distribution. Hamartomas were encountered in patients of all age groups, the largest number being in the group between 51 and 60 years. This is not to be construed as evidence that a hamartoma is most commonly present in persons in this decade of life; rather, it reflects the greater number of examinations carried out on patients of this age group. Various metastatic lesions were found in patients of all age groups; the age characteristic of the primary lesion, of course, was the determining factor. While granulomas were removed from patients of all ages, the greatest number was found in the age group from 41 to 50 years. Undoubtedly, as was the case with the group with hamartoma, the greater number of exploratory thoracotomies performed in this age group had an important bearing on the fact that there were more patients with granuloma in this age group than in any other. Typically, bronchial cysts are discovered and removed during young adult life, the oldest patient in this series being 42 years of age.

TABLE 2.—*Distribution of Solitary Circumscribed Lesions of the Lung According to Sex and Age of Patients*

	Cases								
				Age, Years					
Lesion	Total	Men	Women	1 to 30	31 to 40	41 to 50	51 to 60	61 to 70	Range
Bronchogenic carcinoma	25	20	5	..	1	5	10	9	36 to 66
Bronchial adenoma	12	7	5	..	3	2	4	3	37 to 69
Fibrosarcoma	1	1	..	..	..	1	..	..	41
Metastatic malignant lesion	17	7	10	3	3	4	5	2	6 to 67
Hamartoma	25	18	7	2	5	5	10	3	17 to 66
Mesothelioma	3	3	..	..	..	..	2	1	54 to 64
Thymoma	1	..	1	..	..	..	..	1	65
Hemangioma	1	..	1	..	..	..	..	1	65
Granuloma	65	29	36	4	14	25	16	6	18 to 66
Chronic pneumonitis	1	1	..	..	..	..	1	..	54
Chronic abscess	1	1	..	..	..	1	..	..	42
Bronchogenic cyst	4	2	2	1	2	1	..	..	26 to 42
Total	156	89	67	10	28	44	48	26	

TABLE 3.—*Symptoms Associated with Solitary Circumscribed Lesions of the Lung*

	Cases							
Lesion	Total	No Symptoms Present	Cough	Sputum	Pain	Fever	Wheeze	Hemoptysis
Bronchogenic carcinoma	25	7	16	16	10	7	2	8
Bronchial adenoma	12	4	8	7	4	1	1	4
Fibrosarcoma	1	..	1	1	..	..	..	..
Metastatic malignant lesion	17	11	3	2	2	..	..	3
Hamartoma	25	21	3	1	1	..	..	..
Mesothelioma	3	1	1	1	..	1	1	..
Thymoma	1	..	1	..	1	..	..	..
Hemangioma	1	..	1	1	..	..	..	..
Granuloma	65	36	21	11	12	6	..	..
Chronic pneumonitis	1	..	1	1	1	..	..	1
Chronic abscess	1	..	..	..	1	1	..	..
Bronchogenic cyst	4	1	2	2	..	..	..	2

The sex distribution was characteristic of the specific disease process. Of the entire group, 57% were men. Of the malignant lesions, 64% were found in men; 80% of the bronchogenic carcinomas, 58% of the bronchial adenomas, and 41% of the metastatic lesions were found in men. Granulomas were encountered with similar frequency in both men and women.

SYMPTOMS

While in the study of solitary pulmonary lesions an important distinction has frequently been made between symptomatic and asymptomatic lesions, such a distinction is often difficult to establish owing to the variable emphasis different patients ascribe to symptoms. Consequently, in this study, the presence or absence of symptoms was not a selective factor, and the symptoms were evaluated relative to the etiological basis of the mass.

In general, patients with primary malignant pulmonary disease were most likely to complain of symptoms. Only 28% of the patients with bronchogenic carcinoma and 33% of those with bronchial adenoma were asymptomatic (table 3). Eighty-four per cent of those with hamartomas, 55% of those with granulomas, and 65% of those with metastatic growths presented no symptoms. Cough was a symptom of importance; it was present in 64% of the patients with bronchogenic carcinoma and 67% of those with bronchial adenoma but occurred in only 32% of those with granulomas.

The presence of sputum likewise was highly important and was encountered in 64% of the patients with bronchogenic carcinoma and in 58% of those with bronchial adenoma but in only 17% of those with granuloma. Pain, though frequently difficult to assess, was most commonly encountered in the group of patients with bronchogenic carcinoma. It did not necessarily signify pleural involvement of the tumor. Fever was the complaint most commonly elicited from the patients with bronchogenic carcinoma. A history of wheeze is always highly significant in any patient presenting a mass in the chest. Because of the peripheral location of the great majority of these lesions, this symptom was not a common complaint. It was reported in two of the patients with bronchogenic carcinoma and in one of the patients with bronchial adenoma. In one instance, a patient with a large mesothelioma complained of wheezing.

The single most important symptom signifying serious disease was hemoptysis. None of the 65 patients with granulomas gave a history of hemoptysis. Thirty-two per cent of the patients with bronchogenic carcinoma and 33% of those with bronchial adenoma had coughed up blood at some time. In fact, with the exception of the patient with chronic pneumonitis and two patients with bronchogenic cysts, a history of hemoptysis signified a malignant pulmonary growth.

HISTORY OF PREVIOUS PULMONARY DISEASE

A rounded pulmonary lesion may be related to a previous morbid process in the lung. The shadow may represent the persisting residuum of a more extensive inflammatory process in which pathological activity has been greatly reduced or has disappeared. The shadow may be indicative of a mass that intermittently obstructs an air passage to produce the well-established picture of obstructive pneumonitis or one of its variants, represented clinically as recurrent pneumonia. It would appear essential, therefore, to inquire carefully into the patient's history in order to elicit evidence of previous bouts of pulmonary infection regardless of the presence of symptoms at the time of the current examination.

The histories of our patients were carefully reviewed to determine to what extent the presence of previous pulmonary disease was of diagnostic value in evaluating the nature of the present pulmonary shadow. Except in a few isolated instances, little aid was derived from this search, and only occasionally did the history of previous pulmonary disease arouse a suspicion of the nature of the underlying process.

Of the 25 patients with bronchogenic carcinoma, only 2 gave histories of pneumonia in the recent past. Three others had experienced pleurisy in the remote past, but it is difficult to see how this could have been related to the current process. This incidence of pulmonary inflammatory disease associated with bronchogenic carcinoma is, of course, much less than that usually found, since these lesions were for the most part peripheral and nonobstructing. In two of the patients, a diagnosis of tuberculosis had been made because a rounded mass was found in the lung, and they had been sent to sanatoriums. One of these patients faithfully followed a program of strict rest in bed for a period of two years, in spite of repeatedly negative results on examination of the sputum for tubercle bacilli. This only serves to emphasize the great and frequently unwarranted responsibility a physician must assume in persisting in the diagnosis of tuberculosis in the absence of confirmatory laboratory data. In this study, these were the only patients of the entire group who actually received treatment in a sanatorium at any time.

Two of the patients with bronchial adenomas had recently experienced bouts of pulmonary infection diagnosed as pneumonia. In both cases, the location of the adenoma could readily have allowed obstruction of the airway to the distal part of the lung.

The history of previous pulmonary disease provided little clinical suggestion of the nature of the granulomatous lesions. In spite of the known association of tuberculosis with granulomatous pulmonary lesions, only 3 of these 65 patients gave even a dubious history of tuberculosis. Two patients had been informed that they had healed tuberculosis, and one patient had been suspected of having tuberculosis at an early age. Six patients had had pleurisy and three others pneumonia at some time, but the relationship between these illnesses and the finding of the pulmonary shadow appeared too remote to be of definite significance.

Among the patients with lesions resulting from other causes, the history of previous pulmonary disease was similar to that which might be obtained from any group of persons of similar age.

HISTORY OF PREVIOUS MALIGNANT DISEASE

A history of previous or simultaneous malignant disease is always strongly suggestive of the nature of a circumscribed intrapulmonary lesion. In this study, there were 19 instances in which the pulmonary lesion appeared in a person who had previously had a malignant tumor removed from an organ other than the lung. In all 19, the pulmonary lesion was presumed to represent metastasis; however, in two instances, the pulmonary shadow was caused by a mass that was totally unrelated to the previously excised growth. In the first case, the patient had undergone two previous resections of the colon for two independent primary adenocarcinomas, the first in 1922 and the second in 1948. During the examination prior to the second operation, a pulmonary mass was detected on the roentgenogram of the chest and was assumed to represent metastasis. Accordingly, resection of the colon was considered as being palliative; however, three years later, this mass had grown only slightly, and no other evidence of metastasis had appeared. For this reason, it appeared justifiable to proceed with resection for this presumably solitary metastatic lesion. Pathological examination of the pulmonary mass revealed it to be a bronchial adenoma. There was no evidence of any metastatic growth elsewhere in the resected specimen. In the second case, a carcinoma of the descending colon was detected during the same examination at which the patient was found to have a solitary lesion in the lung. After resection for the adenocarcinoma of the colon, exploratory thoracotomy was carried out for the resection of the presumably solitary pulmonary metastatic growth. This growth, however, proved to be a hamartoma.

By and large, the finding of a pulmonary mass on the roentgenogram of the chest of a person with known malignant disease elsewhere in the body may be assumed, in most cases, to represent metastasis from the primary growth. It is not within the province of this paper to urge that resection be performed for all such masses; however, the suspicion that the mass may be totally unrelated to the known malignant process must be constantly entertained until proved otherwise. Furthermore, the lack of evident growth of the mass or the failure of the appearance of other nodules in the lungs increases the urgency for proving the nature of the pulmonary mass.

LABORATORY STUDIES

Blood Cell Counts.—A depression of the erythrocyte count or an elevation of the leukocyte count was rarely reported in this group of patients. This is not surprising in view of the fact that the lesions, for the most part, were small and not associated with significant degrees of acute inflammatory change.

Sedimentation Rate.—Elevation of the sedimentation rate of the erythrocytes, in a patient with a solitary lesion in the lung, is of serious significance. Among the patients with bronchogenic carcinomas, 74% of those in whom the sedimentation rate was measured had increased values. On the other hand, only 23% of those who had granulomatous lesions and who had determinations of the sedimentation rate demonstrated increased values. The sedimentation rate was elevated in 50% of the patients with bronchial adenomas and in 55% of those with metastatic pulmonary lesions. Thus, the frequent finding of an elevation of the sedimentation rate among the patients with neoplastic lesions demonstrates the important place of this test in the clinical evaluation of patients with circumscribed lesions of the lung.

Skin Tests.—In the clinical evaluation of solitary pulmonary lesions, the importance of the tuberculin test resides primarily in its reaction being negative. This concept is based on the assumption that most granulomatous lesions are tuberculous in origin. In two groups of patients, one group with solitary neoplastic lesions and the other with solitary granulomatous lesions, the incidence of a positive tuberculin reaction should be almost 100% in the second group and no greater in the first group than in the general population of the same age. These assumptions were not substantiated by the findings of this study. Actually the incidence of negative tuberculin reactions was similar (22%) among patients with a granulomatous lesion and patients with bronchogenic carcinoma. For this reason, the report of a negative tuberculin reaction should not in itself influence the clinician's judgment of the nature of the lesion.

Granulomatous lesions are by no means all tuberculous in origin. Important evidence favoring the nontuberculous basis of many of these lesions was obtained by means of skin tests. As stated, in seven cases (22%), the reaction was negative. In 7 out of 10 patients tested for histoplasmin sensitivity, the reaction was positive. Three of these patients were among those who reacted negatively to tuberculin. Reaction to the coccidioidin test was positive in 2 of the 10 persons in whom the test was performed. One patient whose lesion produced a pure culture of Brucella suis gave a positive skin reaction to the antigen of the same organism.

Bacteriological Examination of Sputum. — Sputum was examined for the presence of acid-fast organisms in 31 persons in whom the lesion was of a granulomatous nature, and in none was an acid-fast organism detected. On five occasions, acid-fast organisms were isolated from the excised lesion even though adequate examination of the sputum had failed to detect its presence. Bacteriological examination of sputum appears to be of little value in determining either the nature of the lesion or the presence of bacteriological activity of the lesion, if it is proved to be granulomatous in nature.

Cytological Examination of Sputum and Bronchial Washings.—The value of cytological examination of the sputum in this study appeared indisputable. No false positive results were reported. The sputum was examined for the presence of malignant cells in 15 of the cases of bronchogenic carcinoma and, in 8 (53%) of these, such cells were found (table 4). The bronchial washings in one additional case contained malignant cells. Because many of the patients included in this study were operated on prior to the development of cytological methods for the examination of sputum, this test was not universally employed. As noted in table 4, the incidence of positive results of examination of the sputum for malignant cells was particularly high among patients with the squamous cell variety of bronchogenic carcinoma. The high reliability of this test should encourage its employment wherever practical. It is the most useful laboratory means available for the establishment of a positive preoperative diagnosis in patients with circumscribed lesions of the lung.

TABLE 4.—*Types of Cells Found on Cytological Examination of Sputum of Patients with Bronchogenic Carcinoma*

	Cases			
Cell Type	Total	Positive	Negative	Not Examined
Squamous cell	6	3	1	2
Small cell	2	0	1	1
Large cell	13	4	3	6
Adenocarcinoma	4	1	2	1
Total	25	8	7	10

BRONCHOSCOPIC EXAMINATION

Bronchoscopic examination was performed in 67 cases. This included 18 cases of bronchogenic carcinoma, 8 of adenoma, 4 of metastatic lesions, 10 of hamartoma, 22 of granuloma, and 5 of various benign conditions. In two patients with bronchogenic carcinoma, a mass was visualized, but biopsy of this tissue revealed only inflammatory changes. In another, a biopsy specimen taken from the region of the right upper lobe bronchus contained malignant tissue, although a mass was not seen. Positive results of bronchoscopic biopsy were obtained in two other cases; bronchial adenoma was disclosed in one case and metastatic malignant disease in the other. In 38 additional cases, biopsy of the bronchial mucosa demonstrated no abnormality. The information gained from bronchoscopic examination and biopsy was extremely meager, so meager that the wisdom of subjecting all patients with circumscribed lesions to routine bronchoscopic examination is seriously questioned. Actually, little should be expected from bronchoscopic examination because of the peripheral position of most of these lesions in the pulmonary fields.

ROENTGENOLOGIC CHARACTERISTICS

A detailed roentgenologic study was made of all available chest roentgenograms of the patients in this series. The results of this study constitute the basis of another publication [1] and will only be summarized here.

Evidence of growth of a pulmonary lesion increased the suspicion of malignancy. Increase in size, however, was encountered in some cases of hamartoma and granuloma and, so, was not invariably indicative of a malignant neoplasm. The location of the pulmonary shadow gave no clue to its cause. In spite of the facts that granulomas are most commonly of tuberculous origin and that tuberculosis notoriously attacks the upper lobes, the circumscribed granulomas were less commonly found in the upper than in the lower lobes.

Benign and malignant lesions, alike, occurred in all sizes. No bronchogenic carcinoma was found that measured less than 2 cm. in diameter, although several of the metastatic lesions were this small. On the other hand, 60% of the granulomas were 2.5 cm. or less in diameter. The large shadows most frequently represented malignant lesions, although large hamartomas and granulomas were encountered.

Table 5.—*Operative Procedures and Hospital Mortality in Patients with Solitary Circumscribed Lesions of the Lung*

	Cases					
Lesion	Total	Local Excision	Segmental Resection	Lobectomy	Pneumonectomy	Deaths
Bronchogenic carcinoma.........	25	0	0	10	15	1 *
Bronchial adenoma..............	12	0	0	12	0	0
Fibrosarcoma	1	0	0	1	0	0
Metastatic malignant lesion.....	17	1	1	14	1	0
Hamartoma	25	17	1	5	2	0
Mesothelioma	3	2	0	1	0	1 *
Thymoma	1	0	0	1	0	0
Hemangioma	1	0	0	1	0	0
Granuloma	65	39	6	20	0	0
Chronic pneumonitis............	1	1	0	0	0	0
Chronic abscess................	1	0	0	1	0	0
Bronchogenic cyst..............	4	0	1	3	0	0
Total..........................	156	60	9	69	18	2

* Death followed lobectomy.

Evidence of calcification, as manifested by punctate densities or concentric lamination, was encountered in 32% of the granulomas and in 28% of the hamartomas but in no other lesions. Lamination was found exclusively in the granulomatous group. Calcification constituted the only roentgenologic assurance of benignancy. Because of the helpfulness of body-section roentgenography in detecting calcification, we feel that it should be more widely employed.

In the group of lesions without visible calcification, the incidence of the various types was somewhat different from that in the entire group. In this calcium-free group, 20% of the lesions were bronchogenic carcinomas, 8% bronchial adenomas, and 14% metastatic malignant lesions. The incidence of malignancy in circumscribed lesions of the lung that did not display calcification was 42%.

A careful examination of features such as sharpness of border, regularity of outline, and density of the mass failed to reveal characteristics useful in distinguishing benign from malignant lesions.

OPERATIVE TREATMENT

All patients in this study underwent surgical excision of the entire lesion (table 5). No cases in which the surgical procedure was limited to a biopsy of the lesion were included in our series. In 101 of the cases, exploratory thoracotomy was the means of diagnosis as well as the means of treatment of the lesion.

The patients with bronchogenic carcinoma were treated by lobectomy in 10 cases and pneumonectomy in 15 cases. There was one death in this group. All patients with bronchial adenoma underwent lobectomy. Hamartomas were removed by local excision in most cases, although, in five, the lesion was excised by lobectomy and, in two, by pneumonectomy. The latter two patients were treated during the period prior to our full understanding of this lesion, and it appears likely that a less taxing operation would be performed in such instances today. Metastatic lesions were removed by lobectomy, as a rule, although one required pneumonectomy, and one was treated by local excision and another by segmental resection. Granulomas were excised locally in 39 and by segmental resection in 6 patients. Twenty larger granulomas required lobectomy.

Justification for thoracotomy as a diagnostic as well as a therapeutic measure is attested by the fact that there were only two hospital deaths in the entire series, a mortality rate of 1.3%. One of the deaths followed lobectomy for bronchogenic carcinoma in an elderly man who developed postoperative atelectasis and who ultimately died of uremia. The other death also occurred in an elderly man after lobectomy for a mesothelioma. His postoperative course was complicated by the development of a bronchopleural fistula.

The morbidity after operation was slight. Complications requiring treatment occurred in nine patients and included: atelectasis in two, empyema in two, pleural effusion in one, postoperative hemorrhage in one, auricular fibrillation in one, pulmonary embolus in one, and indeterminate fever in one. No attempt has been made to determine the long-time results of the operative treatment.

RECAPITULATION

By use of the clinical means available during the study of these patients, approximately one-third of them were accepted for surgical treatment after the establishment of a preoperative diagnosis. Conversely, two-thirds of the circumscribed lesions in this study were of indeterminate nature. Three important means of establishing a diagnosis were found. Cytological examination of the sputum was extremely useful in the detection of bronchogenic carcinoma. History of previous malignant disease provided a reliable although not infallible clue to the diagnosis of metastatic lesions. The demonstration of calcium in roentgenograms of the chest indicated the benign nature of the lesion, although, in approximately one-fourth of these cases, the distinction could not be made between a hamartoma and a granuloma.

With regard to only the 101 lesions in which the nature was indeterminate prior to exploratory thoracotomy, it was noted that the incidence of bronchogenic carcinoma in this group was similar to that of bronchogenic carcinoma in the entire group of 156 cases, 17%. The same close similarity of incidence applied to bronchial adenoma, hamartoma, and granuloma.

---

[1] Good, C. A.; Hood, R. T., Jr., and McDonald, J. R.: Significance of a Solitary Mass in the Lung, Am. J. Roentgenol., to be published.

Close examination of roentgenograms of the chest not only will disclose the presence of a circumscribed lesion of the lung but also will usually indicate the presence or absence of calcium. Circumscribed lesions may immediately be classified as those containing calcium and those not containing calcium. Since the calcified lesions constitute no important diagnostic problem, they may be set apart. Consequently, the incidence of malignancy in the remaining or noncalcified group is proportionately higher, and the advisability of exploratory thoracotomy is accordingly increased.

COMMENT

Ideally, we should know the exact incidence of the various lesions responsible for the roentgenologic appearance of a circumscribed mass in the lung. Obviously, these figures are not available and we do not mean to imply that the figures reported in this study apply to the total group of patients in whom a circumscribed lesion is discovered. Certain factors of selectivity must inevitably exert an influence on the choice of any group of patients treated by operation. In this instance, in addition to the factors of the patient's refusal of operation and the physician's reluctance to advise an elective operation because of the general poor health of the patient, statistically, the most important selective factor is the physician's own decision that a particular lesion may not warrant surgical exploration. This decision is based, for the most part, on the size of the lesion, the age of the patient, and the lack of symptoms. The bearing of these three factors on the etiological aspects of the lesions in this study has been analyzed. When due consideration is given these factors, it seems that the incidence of various lesions in this study of surgically treated patients approximates their incidence among all patients with circumscribed pulmonary masses.

An attempt has been made to evaluate impartially the various diagnostic procedures available for the study of patients with circumscribed lesions of the lung. Only one laboratory test was of absolute diagnostic value, the cytological examination of sputum. In spite of the fact that these lesions were, for the most part, peripheral in location and, thus, unfavorably situated for the exfoliation of malignant cells, the diagnosis was established by cytological examination of the sputum in 53% of the patients with bronchogenic carcinoma whose sputum was examined.

Two other laboratory examinations were helpful in the evaluation of the lesion under study. The first was determination of the sedimentation rate, which was frequently found to be elevated in patients with malignant lesions but usually not in those with benign lesions. The second was the tuberculin test. A negative reaction in a patient with a circumscribed lesion increases the suspicion of a neoplastic process. It should be borne in mind, however, that patients with neoplastic lesions are just as likely to demonstrate a positive reaction to tuberculin as are others of the same age group. Furthermore, patients with solitary granulomas of the lung may display negative reactions. There appears to be little, if any, need to examine bacteriologically the sputum of these patients. No information regarding the nature of the lesion is to be expected from examination of the blood.

The important role of roentgenologic examination encompasses both the detection and the diagnosis of circumscribed masses. It is the sole means of detection, although its value in diagnosis is limited strictly to the demonstration of calcification. Calcification is the only finding that reliably indicates benignancy. Frequently demonstration of calcification requires the special technique of body-section roentgenography. That more definitive interpretation of roentgenograms is unreliable must be recognized by the attending physician.

Although bronchoscopic examination is considered in some circles as the epitome of a complete preoperative diagnostic study of any patient with a pulmonary lesion, among patients with circumscribed lesions, its use is seldom justified. Only among those whose lesions lie in the region of the pulmonary hilus may any diagnostic findings be expected.

A general appreciation of the value of these various means for the clinical study of patients with circumscribed lesions of the lung should simplify the preoperative program of diagnostic study. We believe that patients whose lesions do not contain demonstrable calcification should have an adequate examination of the sputum for malignant cells, a determination of the blood sedimentation rate, and a tuberculin test. Prolonging the diagnostic study beyond these is, in most cases, without justification, and the decision regarding operation should not be delayed on this account.

In general, it is our policy to consider that the finding of a solitary mass in the lung constitutes an indication for exploratory thoracotomy, unless the benign nature of the lesion appears certain. The latter assurance is totally dependent on the demonstration of calcification. Among the noncalcified lesions in our study, 42% were malignant. Opposed to this, the mortality rate for pulmonary resection in the 156 cases was 1.3%. This indicates that the hazard of observing rather than excising an indeterminate mass is extreme.

It is recognized that the application of these indications for excision is occasionally impracticable because of a patient's poor health. Under such circumstances, careful consideration of factors, such as the patient's age and sex, the nature of the pulmonary symptoms, the size of the lesion, and the appearance of previous roentgenograms, will guide the attending physician and the consulting surgeon to the wisest decision regarding operation.

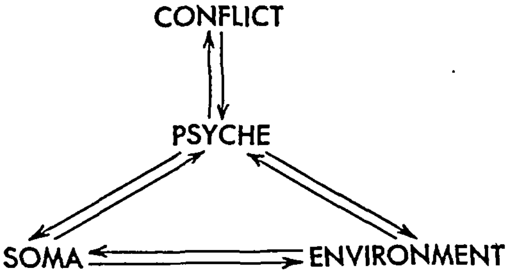
SUMMARY AND CONCLUSIONS

A report is made of a review of 156 cases of solitary circumscribed lesions of the lung in which the mass was completely excised surgically. Approximately 35% of the lesions were malignant, and 65% were benign. No lesion that displayed roentgenographically demonstrable calcification was malignant. The incidence of malignancy among the remaining lesions was 42%. It is concluded that, with few exceptions, the finding of a noncalcified solitary pulmonary mass constitutes an indication for exploratory thoracotomy.

TREATMENT OF "FUNCTIONAL" DISORDERS

Malcolm S. M. Watts, M.D.
and
Dwight L. Wilbur, M.D., San Francisco

There are more hopeful avenues of approach to the management of "functional" disorders than is the case with most "organic" diseases. Indeed, an optimistic attitude toward the management of patients with these conditions is desirable and justified. In this communication a practical method of treatment is described for this group of patients, who constitute so important a part of the practice of many physicians. Emphasis is placed on (1) the therapeutic implications of the actual diagnostic procedures previously described,[1] (2) a successful explanation to the patient of the "functional" nature of his symptoms, and (3) the "definitive" or "specific" management of the precipitating conflict situation, the patient's attitude toward it, somatic symptoms, and the environmental situation. A physician may be able to diminish distressing symptoms immediately, if only temporarily, by use of drugs or other therapy for somatic effect; or he may modify the patient's environmental situation in such a way as to reduce anxiety and tension; or, recognizing the underlying emotional difficulty, he may help the patient by psychotherapeutic means to make a better adjustment.



Extrinsic sources of stress.

The term functional is used to identify the disorders of patients with symptoms of nervousness, fatigue, weakness, insomnia, dizziness, and a variety of other somatic complaints for which no organic cause can be found, because it is felt that the symptoms arise from a disturbance of the function of the patient as a whole. Functional disorders are caused by psychic conflict, and the symptoms are a manifestation of its accompanying anxiety. Sometimes the precipitating cause of the psychic conflict may arise within the psyche itself, and the conflict then is termed intrinsic or "intrapsychic." More commonly, the precipitating factor is extrinsic or "extrapsychic" and arises in the interrelationship between (1) the psyche and the soma, (2) the psyche and the environment, or (3) the soma and the environment (see the chart). Examples of these extrapsychic precipitating factors might include (1) the appearance of hirsutism in a young girl, (2) dissatisfaction of a person with his job, or (3) inability of a person who has had a coronary occlusion to do the hard physical labor by which he earns his living and supports his family.

THERAPEUTIC IMPORTANCE OF DIAGNOSTIC TECHNIQUES

Functional disorders tend to give rise to a common set of symptoms, which may obscure the fact that the stress producing situation is almost always different and highly individualized for each patient or for the same patient at different times. A properly taken and evaluated medical history will permit detection of functional as well as organic disease and also will elicit more or less specific data concerning the precipitating, stress producing situation. The diagnostic features of the history have been discussed previously. Therapeutically, careful diagnosis is important not only as an essential guide in planning the individualized program so necessary for successful treatment but also because in itself it may have a beneficial effect on the patient. If the patient tells his "real troubles," he often shares the load with the physician and is relieved of some of the burden. In addition, the process of taking a good history develops understanding and confidence between physician and patient, which is an essential foundation for therapeutic success.

A thorough physical examination is necessary to confirm the presence or absence of organic disease and, if it is present, to estimate its role in the production of symptoms or disability. Moreover, during the examination, diagnostically important hints of emotional strain or tension may be noted. Examination of the heart or genitals, for example, may evoke an anxious facial expression, flushing, sweating, tremor, or increased pulse rate, indicating undue concern with the part examined. Psychotherapeutically, the physical examination assures the patient that his problem is being treated seriously. It may entirely suffice to convince him that his fears of cancer or heart disease are groundless. When this occurs, anxiety with its symptoms disappears, and the patient is cured. On the other hand, too careful and prolonged or repeated examinations may create or accentuate anxiety if one organ or one part appears to receive undue attention. The physical examination of patients with functional disorders should be thorough, complete, and, if possible, final.

Laboratory studies, roentgenograms, and sometimes consultations may be necessary. They should be adequate to satisfy the physician's conscience. Therapeutically, they are essential to convince the patient that nothing has been overlooked and that he does not have the disease he fears and to provide an adequate basis for explanation to the patient of his difficulty.

From the Department of Medicine, University of California School of Medicine, and the Department of Medicine, Stanford University School of Medicine.

[1] Watts, M. S. M., and Wilbur, D. L.: Clinical Management of "Functional" Disorders: The Diagnostic Interview, J. A. M. A. 148: 704-708 (March 1) 1952.

PLANNING FOR TREATMENT

After the diagnostic interview, the physician must decide whether the problem is one he can handle with the knowledge and experience at his command or whether the patient requires more skillful psychiatric care. For the most part, general physicians can adequately treat a patient with conflicts precipitated predominantly by extrapsychic factors, and usually they can help a patient whose problem is predominantly one of intrapsychic precipitating factors of long duration, with occasional exacerbations from extrapsychic factors, that is, the usual psychoneurotic person. Such patients do not respond quickly or well to psychotherapy. Patients with psychotic symptoms, with a notable absence of emotional concern about their condition, or with hysteria or those whose conflicts involve deep guilt or serious disturbance of one of the basic emotional drives should be cared for by a competent psychiatrist. Occasionally, however, a physician may carry some such patients along superficially until they are willing to cooperate in seeing a psychiatrist.

A physician who is treating a patient with a functional disorder must develop a plan tailored to fit the individual problem. This should include a well thought out way to explain the symptoms to the patient and a carefully considered program of specific therapy directed toward the conflict situation, the psyche, the soma, and the environment. The plan will be based on information obtained in the diagnostic interview, the physical examination, and the results of laboratory studies. The physician is guided in what he says and how he says it by his estimation of the patient's intelligence, education, character, past experience, and degree of sexual, psychological, and philosophical maturity as well as by the characteristics of the conflict situation. Successful therapy depends not on the treatment of the symptom complex but on management of the person who has the symptoms. There are many useful therapeutic techniques available. Skillful selection and application of them is the key to success. It is often surprising what can be accomplished.

During the diagnostic phase, symptomatic treatment and specific therapy should be used cautiously. Pain or other disability resulting from organic disease should be relieved, but if symptoms resulting from functional disorders are prematurely relieved, the patient may be satisfied with his temporary improvement and reluctant to carry out the program necessary for ultimate recovery. Anxious patients may ask for tentative opinions or partial reports as studies are progressing. A premature discussion may place the physician in the awkward position of later having to retract or change his statement, thus undermining the patient's confidence. Such a patient may be put off with a statement that his is a complicated problem and that it is best to complete the studies before coming to any conclusions. This is usually appreciated and increases the patient's belief that his problem is being seriously considered and will be satisfactorily solved.

Finally, during this phase, it may be possible to lay some groundwork for therapy; for example, if asked, "Do you think my troubles are all imaginary, Doctor?" the physician may answer that he is sure they are not imaginary but that it is known that such symptoms often result from tension or stress of emotional strain as well as from organic disease. He may add that, while this may be the case, he is not yet in a position to say so until the diagnostic studies are completed. Nevertheless, the seed is planted.

EXPLANATION TO THE PATIENT

Rare nowadays is the patient who is satisfied by the statement, "There is nothing the matter with you; it is all your nerves." The modern patient is indoctrinated through newspapers, magazines, radios, and books in matters pertaining to medicine. His knowledge of medicine is often greater than his physician suspects. These facts contribute largely to the necessity of adequately explaining to the patient the cause and nature of his particular symptoms. Especially in functional disorders, the patient must be convinced of the diagnosis if treatment is to be successful.

In the explanation of the diagnosis, organic disease is considered first. If it is present, the extent to which it contributes to the symptoms and disability is carefully explained. If absent, the evidence for its absence is reviewed. Particular emphasis is placed on diseases the patient thinks or fears he may have. The physical examination and laboratory findings are reviewed. Many patients welcome a chance to see their own x-ray films. If functional disorders are present there will be symptoms not accounted for by any existing organic disease. Evidence that they are functional in nature will usually have been uncovered during the diagnostic interview. The physician certainly must let it be known that he does not look on the symptoms as imaginary, for to tell a patient with headache, for example, that he has no headache is to defeat therapy at the outset. At the same time, the patient must be convinced that the symptoms are the body's "normal" response to prolonged anxiety or tension and are not indicative of a severe or incurable lesion.

It should be relatively easy to show a patient how tension may result in symptoms. One who is called on to make a speech, for example, may feel tense, have a tight feeling in the stomach, and be unable to eat much. Soldiers before a battle may vomit, note urgency of micturition, or have loose stools. Athletes often are tense before an important game. Many persons have experienced tension symptoms while awaiting a reprimand or punishment, perhaps in school. Almost everyone has observed a cat being attacked by a dog and has noted the bodily changes in the cat that result from tension and anxiety. By one or another explanation, the patient is led to accept the fact that anxiety or tension may indeed produce actual functional changes within the body. Then it is emphasized that it is nature's plan for a conflict situation to be resolved by fight or flight and that if the situation persists more or less indefinitely, the organism is subjected to continued stress, which leads to tension symptoms and eventually to fatigue and exhaustion.

Next, the patient is told that a certain amount of tension and stress is a normal part of everyday life. Everyone has anxieties and problems. It is pointed out that each person has a limit of tolerance for tension or stress and that, when this limit is exceeded, symptoms occur. It may be mentioned that symptoms develop in soldiers and airmen who are perfectly normal physically and mentally if they are kept in combat too long or fly too many dangerous missions and that, as soon as they are removed from the stress-producing situation and their total stress load is reduced, the symptoms quickly subside. It is emphasized that there is nothing abnormal or weak about finding oneself in a position in which one's stress load exceeds the tolerance for stress. It happens to almost everyone at one time or another. Every effort should be made to preserve the self-respect of the patient and the feeling that he is respected in the eyes of members of his family and close friends.

It is always necessary that the patient be convinced of the explanation for his symptoms. When the organic and functional components of his difficulty have been explained, the patient should be given an opportunity to ask questions. The physician must have an answer for every question, and the answers must be consistent. When all of the questions have been answered and the patient can think of nothing further to say, the physician is in an ideal position to undertake logical and specific treatment. Sometimes the moment may be indicated by the patient's saying something such as, "Well, how can I get rid of these symptoms?"

AIM OF THERAPY

Specific therapy of functional disorders is directed toward reducing the stress load of the patient and improving his ability to cope with tension. As this is accomplished, the symptoms diminish. When the total stress load no longer exceeds the tolerance of the patient, the functional symptoms vanish. Information obtained during the diagnostic interview[1] and subsequent examination serves as a guide in planning and executing specific treatment to meet the needs and fit the capabilities of the patient. Much depends on the nature and depth of the conflict at the root of the functional disturbance, whether it is intrinsic or extrinsic and whether it is recent and superficial, as in dissatisfaction with one's job, or deep and long-standing and involving the basic emotional drives, as in latent homosexuality.

THERAPY FOR CONFLICT SITUATIONS

For general physicians, it is advisable to attempt no more than superficial treatment of a patient if the factors in the conflict causing functional disturbance are predominantly intrapsychic. Such conflicts are usually deep, are an integral part of the patient's total adjustment, and are best not disturbed except in competent, thorough psychotherapy. In such a case, the symptoms of tension or fatigue and exhaustion usually predominate. If nervousness and tension are the principal symptoms, the patient will usually admit that he has been a nervous, restless person all his life. The physician then may tell him that this is because he has a lot of nervous energy, which is "built in" and is part of him. It may be well to remind him that those who accomplish most in this world are persons with a lot of drive and energy. Usually this explanation suffices, but if the patient is curious as to why he has this troublesome nervous energy it may be wise to mention that it results from difficulties in psychic adjustment in infancy and childhood. Since many such persons are aware, consciously or subconsciously, of difficulties in their early life, they tend to accept this superficial explanation. It is to be emphasized to the patient that this is a normal situation and does not indicate mental disease or insanity. Treatment involves utilization of this nervous and physical energy by suitably increasing physical activities and intellectual interests. This may be difficult to accomplish for a patient who has had, for example, an attack of coronary thrombosis and is suddenly deprived of the accustomed outlets for excess energy. Obviously, other outlets within his physical capabilities must be developed.

When fatigue and exhaustion are long-standing symptoms, it may be explained that there is a lot of "inward tension," which results in a constant state of strain, which in turn causes real physical fatigue and nervous exhaustion. Again, little is said of the causative deep intrinsic conflict situation. Such patients often readily admit they have always been inwardly tense or nervous. Again, if necessary, this may be vaguely explained to be the natural result of difficulties in psychic adjustment in early life. Often in patients of this kind, a vicious circle has been established: symptoms resulting from tension and anxiety are ascribed by the patient to some undiagnosed organic disorder, which adds fear to the stress load and increases the symptoms. The therapeutic problem is to interrupt the vicious circle by removing the fear of organic disease and reducing the stress load. The patient's resistance is also increased by gradually increasing his physical and mental activities and by general supportive measures.

Patients with predominantly intrinsic conflicts often meet complicating extrapsychic, stress producing situations. These add to the total stress load and frequently precipitate the functional symptoms for which the patient consults a physician. Usually, the extrapsychic factor can be identified and overcome and the patient restored to his original, relatively symptom-free state. In these instances, emphasis is placed on management of the extrinsic rather than the intrinsic stress producing factors.

Excellent results are often obtained by exposing extrapsychic precipitating factors. If possible, the responsibility for correlating the symptoms and the conflict situation should be shifted to the patient, for if he himself recognizes the relationship he is more likely to give credence to it than he would be if it were proposed to him by a physician. Getting the patient to have a proprietary interest in the diagnosis may be accomplished in several ways. The physician may say, "You really told me the trouble when you said . . .," or "Your trouble seems to have started when you moved in with your husband's family. Wouldn't you really rather have your own home?" Sometimes it is possible to approach the conflict in such a way that the patient spontaneously takes the final step in recognizing the cause of his difficulty. Once the precipitating factor is in the open and the fact that it causes the symptoms is established, it is a simple matter to point out that the symptoms will persist unless the patient can fight or flee. Often this involves the patient in the making of a decision that has been postponed or avoided. The decision to fight or flee or, equally important, the decision to do neither but to recognize the burden and carry it must be made by the patient himself. The physician may point up the issue and perhaps help to clarify the positive and negative aspects, but the patient must decide. The physician at best can only support the patient's decision. If the conflict situation cannot be avoided or successfully overcome, insight often helps the patient immensely. At least he is relieved of the fear of organic disease, and the physician has other avenues of treatment, discussed below.

IMPROVING THE PATIENT'S ATTITUDE

A second approach to therapy is through improving the patient's attitude. Whitehorn[2] aptly expressed the objective of this when he said, "Psychotherapy will consist largely in the thoughtful and respectful consideration with the patient of how the situation might be met more effectively, not by an ideal person, but by the person who is the patient, using to the best advantage, the assets and attitudes which he has shown in periods of good adjustment. The whole art of psychotherapy depends largely on learning how to exert this special personal influence strategically to meet the patient's best advantage in finding a better way to meet a life-situation." When a general physician attempts to improve his patient's tolerance for stress, his efforts are those of a teacher educating his patient not those of a psychiatrist employing major psychotherapeutic techniques. A sympathetic and uncritical attitude on the part of the physician is a form of supportive treatment. The care taken in diagnosis should assure the patient his symptoms are taken seriously. If the physician seems optimistic and feels that something can be done, this hopeful attitude is transferred to the patient. If the conflict situation cannot be resolved or avoided, the patient is urged to accept his difficulty with equanimity; for example, the physician may call attention to the futility of beating one's head against a stone wall, or he may cite Trudeau's advice that the conquest of fate is achieved not by fighting it or by running away from it but by acquiescence. The physician may help to clarify to the patient his psychic and physiological assets and liabilities. Successful adjustment depends, of course, on taking advantage of one's strong points and minimizing one's weaknesses.

Recently Whitehorn[3] discussed "levels of maturity." At the infantile level, the outstanding need is for affection or attention. The child seeks praise and often alibis to avoid blame. The early adolescent looks for emotional satisfaction in conquest. The mature adult attains a more balanced perspective regarding himself and his work in relation to others. Not all adults are mature, however, and the level of maturity must be considered. If the patient is to be relieved, his emotional needs at his level of maturity must be recognized and provided for, and, sometimes, over the years, a physician may even help a patient develop greater maturity.

More superficially, especially if the conflict situation is to be entirely ignored, the patient may be heartened by reassurance. This is built on a foundation of confidence in the physician and his examination. Its essential components include hope, security, and a feeling of self-esteem. If one of these is lacking, the patient will be disturbed. Hope is supplied by the physician's attitude and perhaps by the good news that there is no serious organic disease; security comes from realization that the problem is being dealt with thoroughly and with understanding and perhaps from a word or two about a good constitution that has stood up well; and self-esteem may be bolstered by a kindly "pat on the back" by the physician, who assures the patient he has handled himself well and has done the right thing all along.

SOMATIC THERAPY

There are three aspects of somatic therapy as used in the management of patients with functional disorders: 1. It is necessary for use in any organic disease that is present. 2. It has definite psychotherapeutic effects. 3. It may be of great help in temporary relief of functional symptoms. If organic disease and a significant functional disorder coexist, the physician should clearly differentiate the symptoms of each in his explanation to the patient. Each should be treated separately.

Frank[4] directed attention to some of the psychotherapeutic aspects of systemic treatment. These should be borne in mind in the management of a patient with functional disorders. One of the pitfalls is that the patient may be made so comfortable he loses his incentive for changing his attitude or solving his conflict. Both the physician and patient may focus attention on symptoms rather than on their cause. The patient may lose confidence if he feels that the physician has failed to seek the true cause of his difficulty. The benefits of symptomatic treatment from the psychological point of view include direct attack on symptoms that may actually be the cause of anxiety, alleviation of symptoms that in themselves may bar approach to the underlying disturbance, and promotion of a favorable attitude by the patient toward the physician, which may create an atmosphere in which the physician can more effectively aid relaxation of the tensions causing the symptoms.

Many of the symptoms of anxiety and nervous exhaustion respond well to sedatives and antispasmodics. The use of sedatives, including various barbiturates as well as chloral hydrate and bromide, is clearly indicated in many cases. Even a fatigued and exhausted patient may feel less fatigued and better able to use his energies productively if he is given sedation. Similarly, sleepless patients given sedatives at bedtime for a week or two may be remarkably improved and regain the poise necessary to cope with a conflict. Occasionally, sympathomimetic drugs (dextro-amphetamine, amphetamine, and methamphetamine), which stimulate the higher nerve centers, may be useful in fatigued patients, but, in general, sedatives are more effective. For patients who are depressed, these drugs may be helpful when used temporarily in adequate dosage. The use of analgesics may be necessary to relieve headache and other aches and pains of functional disorders. These drugs are usually more effective when combined with a sedative. For some patients who are tense and have aching, drugs, such as mephenesin, that relax muscles are helpful. Alcohol, both a sedative and analgesic, may be of great assistance in bringing about relaxation in a tense person at the end of a difficult day, but overindulgence must be avoided. Antispasmodics are useful adjuncts, especially in patients with gastrointestinal tract symptoms of a functional nature.

---

[2] Whitehorn, J. C.: Psychotherapy in General Medical Practice, Bull. Johns Hopkins Hosp. 82: 10-19 (Jan.) 1948.

[3] Whitehorn, J. C.: Basic Psychiatry in Medical Practice, J. A. M. A. 148: 329-334 (Feb. 2) 1952.

[4] Frank, J. D.: Psychotherapeutic Aspects of Symptomatic Treatment, Am. J. Psychiat. 103: 21-25 (July) 1946.

Hormones, male and female, have been widely used in treatment of patients with fatigue and anxiety and tension states. While hormone therapy in cases of this type is of questionable value and the results usually disappointing, women at the menopause may benefit considerably from substitution therapy with estrogenic substances. Patients still regard tonics as substances of great value in states of ill health. The benefits of the well-known, old-fashioned ones are largely psychological; however, modern tonics, such as vitamins accompanied at times by iron, have the great advantages of being harmless, of aiding the malnourished, and of having a good psychological effect in that the very term vitamin implies life or vitality. These substances have been widely and shrewdly advertised commercially to conjure an image of brimming salubrity.

For patients with functional disorders, the psychotherapeutic effect of any form of therapy may be great. This applies in particular to therapy with drugs or placebos. Wolf [5] among others, demonstrated the striking pharmacological effect of placebos. Improvement that follows administration to patients of a particular drug or group of drugs may be wholly psychic although the good effect may be attributed by both patient and physician to the pharmacological effect. If the physician maintains a critical attitude in attributing results to drugs that he gives and if medicinal therapy is used intermittently and with adequate psychotherapy and hopefulness, much good can be accomplished and little harm results from use of this form of therapy in patients with functional disorders.

Attention must be given also to general measures in the treatment of functional disorders. The diet should be adequate. Many nervous and tense persons eat poorly and irregularly. A person who drinks 8 or 10 cups of coffee a day because he is nervous may be nervous because he drinks too much coffee. Excessive smoking may also be a cause as well as a result of nervousness. Physical therapy at times is helpful to tide a tense patient over an acute episode. It is expensive and time consuming in the long run. Exercise is always useful in building general body tone. These and many another stimulating measures may be helpful in interrupting the vicious circle of fatigue-anxiety-fatigue in exhausted patients. A patient's activity and rest may be modified as a therapeutic measure. Especially for persons whose underlying conflicts are precipitated primarily by extrapsychic factors, rest is indicated and helpful. Others improve with the avoidance of the conflict situation and with physical and mental rest. Often they improve if they spend a few days in the hospital. On the other hand, patients with predominantly intrapsychic precipitating factors are usually made worse by rest and improve with exercise and increase of their physical and mental activity. This is easy to accomplish in patients who have a lot of nervous energy; difficult in those who are fatigued and exhausted.

An especially difficult patient to manage is one who has a lot of drive and nervous energy and who has been active all his life, yet now has a physical disability, such as myocardial infarction, that limits the activities so necessary for his psychological adjustment. In such circumstances, success depends on inventive development of interests and activities that will absorb the patient's nervous energy without compromising his physical capabilities.

SOCIAL SITUATION

Many patients with symptoms of functional disorders have primarily extrapsychic precipitating factors related to the social or environmental situation. If the precipitating factors can be identified often they can be removed. Even persons with long-standing and deep stress of intrapsychic origin may be thoroughly well adjusted until an extrapsychic or environmental stress or conflict situation is added. They, too, often return to adequate adjustment if the added factor can be removed. A person with ebullience and nothing to absorb it but a boring, sedentary job may improve greatly with a change of occupation. Active hobbies may be developed and social contact encouraged.

If the physician is aware of an extrapsychic source of stress, he may have to weigh the pros and cons of trying to modify it. A man who has worked for 25 years, rising in his organization, may resent the fact that others are now being chosen for the more advanced positions. Financially, he may not be able to afford to give up his job and start again. The physician may find it necessary to balance the disability resulting from this stressful situation against the financial loss that would be entailed in changing jobs. Similar problems arise when the stressful situation concerns marital partners, in-laws, or parents. In such circumstances, a change of climate or a prolonged vacation may be recommended. By these means, the patient's resistance to the stressful situation may be sufficiently increased to permit better adjustment when he again faces it.

Another problem difficult to deal with is anxiety and stress resulting from loneliness, rejection, and insecurity in older age, often the basis of functional disorders in elderly persons. Many American family units are so constituted physically and psychically that there is little provision for the care of an elderly persons. Tensions are inevitable when persons of three generations live under one roof and if members of the older generation are excluded and rejected. Sometimes the family may be reminded of its responsibility to provide to some extent for the needs of grandmother. Usually, the major effort is toward improvement of her stress tolerance. A word to a member of the family or an understanding mutual friend may suffice to materially reduce an extrapsychic source of stress. At times, an understanding pastor is most helpful.

Occasionally, a vicious circle is established between tension symptoms and an environmental stress; for example, tension symptoms may develop in a person with a pending compensation claim, which progress as negotiations are prolonged and thus prolong the negotiations. The vicious circle is relieved only by a settlement that resolves the conflict. If settlement is long delayed, severe functional symptoms may develop, which may be considered related to the precipitating accident or injury but which are actually due to failure to reach a settlement. Such a situation may be expensive to the compensating agency.

---

[5] Wolf, S.: Effects of Suggestion and Conditioning on the Action of Chemical Agents in Human Subjects: The Pharmacology of Placebos, J. Clin. Investigation 29: 100-109 (Jan.) 1950.

PREVENTION OF RECURRENCES

Successful management of patients with anxiety and nervous exhaustion does not end with control of the presenting situation. Many patients will have recurring bouts of tension and anxiety, and of this they should be forewarned. Such a patient should be taught better methods of adjustment to lessen tension and should be told to expect symptoms whenever his tolerance for tension is exceeded. He may learn to avoid situations that will result in anxiety and tension. Through treatment, he may develop insight into his symptoms and build up his stress tolerance to the maximum. He may be taught to avoid long and needless worry about new or persistent symptoms and may be urged to bring problems to the physician and trust him to evaluate the importance of them. The patient should be encouraged and helped to plan for a future that will keep him as content as possible and free of symptoms. His life expectancy is often far greater than he believes.

SOME CAUSES OF FAILURE

Most patients who consult a physician about symptoms of functional disorders will respond to a greater or lesser extent to a program based on the diagnostic and therapeutic principles that have been outlined. If the patient does not improve at all, it is important that the physician know why. Incorrect diagnosis frequently results in a dissatisfied and disturbed patient and physician. If the physician's explanation of a situation does not convince the patient, it will not support the therapeutic program. Failure to fit the treatment aptly and specifically to the peculiar problem of each patient may be the cause of poor results. The general physician is often the first to see a patient with true psychosis or with borderline psychotic manifestations. Such conditions, usually easy to recognize if suspicion of them is kept in mind, of course, call for care of the patient by a competent psychiatrist.

Organic disease should always be considered in cases in which functional symptoms do not fit any of the usual patterns or in which there is no detectable cause for symptoms and yet the patient does not respond satisfactorily to management. It is well known that patients with brain tumor sometimes have been treated for considerable periods as having functional disturbances. Of course, functional disease and organic brain disease may coexist.

RESISTANCE SYMPTOMS

Hart [6] in a recent paper called attention to resistance symptoms. These were described as having become a necessary and integral part of the patient's psychic adjustment. If resistance symptoms are relieved, the patient's adjustment is destroyed, and anxiety and tension become acute. Therefore, although sick and miserable, subconsciously he knows he must avoid being cured. Hart pointed out many of the characteristics of such persons. They procrastinate in seeking medical attention and they indulge in self-treatment, medical shopping, patronage of cults, broken appointments, and sabotage of treatment. They often appear complacent and deny difficulties. They fear and avoid any attempt at personality study. Interestingly, they are often happy and eager to try, once more, remedies they have previously found ineffective. They are difficult, indeed, to cure.

SUMMARY

In treatment of patients with symptoms stemming from functional disturbances caused by anxiety and tension, the diagnostic technique in itself is to some extent therapeutic. It supplies the physician with information he must have for tailoring a program of therapy to fit the peculiarities of the patient and his problem, and it can also be carried out in such a way as to convince the patient he is being dealt with competently and sympathetically, a long step toward relief and receptiveness to further therapy. It is essential that the patient believe the diagnosis to be correct. Simple illustration of the somatic response to psychic stimulus usually helps toward that end. The physician should determine in the course of the diagnostic procedure whether the cause of the disturbance is principally extrapsychic or intrapsychic, that is, whether tension is owing in the main to the effect of worry over a somatic disease or an environmental situation by a patient otherwise well adjusted or only in small part to the effect of such factors on a psyche in which conflict is deeply rooted and of long standing. The precipitating factor causing the tension should be identified, and specific treatment should be directed toward curing any somatic disease that may be present, allaying fear of disease that is not present, and improving the environmental situation or helping the patient to make better adjustment to inescapable burdens. Ego building, reassurance, and approbation often have beneficial effects. Analgesic or sedative drugs may be helpful in some circumstances, but the patient should not be permitted to depend on them indefinitely. In dealing with patients with deep-lying psychic conflicts of long standing, a general physician should not attempt to do more than deal with factors immediately involved in the production of symptoms, and he should not give more than perfunctory explanation of the deeper conflicts. Often the problem with patients of this kind is to provide benign outlets for excessive drives and energies. In some cases, this may require considerable inventiveness. Failures in therapy may result from incorrect diagnosis or inept tailoring or application of the program of treatment to the peculiarities of the conflict situation or the patient and sometimes from the fact that the patient resists therapy because the symptoms are an integral part of his adjustment.

655 Sutter St. (2) (Dr. Wilbur).

---

[6] Hart, A. D.: Psychosomatic Diagnosis, J. A. M. A. 136: 147-152 (Jan. 17) 1948.

ARTERENOL IN TREATMENT OF SHOCK

A. J. Miller, M.D., A. Shifrin, M.D., B. M. Kaplan, M.D., H. Gold, M.D., A. Billings, M.D.
and
L. N. Katz, M.D., Chicago

The management of the various types of shock, each characterized by its own combination of circulatory disturbances,[1] is still far from perfect. Recently, the employment of intra-arterial transfusion[2] and vasopressor drugs[3] for shock has begun to receive increasing attention. The present report is a clinical evaluation of arterenol, a vasopressor drug, in the treatment of shock from various causes.

RATIONALE OF VASOPRESSOR DRUG THERAPY IN SHOCK

Whole blood is the most effective substance to combat shock due to hemorrhage; however, blood (or plasma) is not always immediately available, and other methods of treatment must be employed in the interim. Furthermore, blood and blood products, on occasion, are not effective in reversing the profound hypotension of severe blood loss, and adjuvant therapy is then desirable. Under these circumstances, vasopressor drug therapy would be indicated to combat the severe peripheral vascular collapse.

Severe cardiogenic shock, initiated by the inability of the left heart to maintain an adequate output,[4] is not rare after acute myocardial infarction and is associated with a mortality rate of 75% or higher.[5] Good therapeutic results have been reported with intravenous plasma and blood transfusions,[6] but this approach has generally been considered to have relatively little value.[7] Intravenous administration of blood may aggravate existing pulmonary edema. This may be avoided to some extent by the use of intra-arterial transfusions. The latter have been used by Silber and co-workers[2a] and Berman and Akman,[2b] and the reported results have been encouraging enough to merit further clinical evaluation. It has been previously suggested that intra-arterial transfusion combined with vasopressor drugs may be a more effective therapeutic approach to cardiogenic shock than any heretofore utilized.[3a] Increasing attention has been paid to the use of vasopressor therapy in cardiogenic shock, the primary stimulation to the more recent work being the discovery of vasopressor substances with potent peripheral action and without evident aggravation of myocardial irritability.[8] The aim of the use of vasopressor drugs in the treatment of shock following acute myocardial infarction is to increase the mean aortic pressure and thus reestablish an adequate coronary blood flow. Hellerstein and Brofman[9] have pointed out that the ideal pressor drug would increase peripheral resistance, elevate blood pressure, produce a proportionate increase of coronary flow, and have minimal side-effects and would not decrease cardiac output or produce serious arrhythmias.

Shock following toxemia, infection, or drug intoxication or due to neurogenic factors is associated with peripheral vasomotor collapse and the redistribution and pooling of blood. The primary aim of therapy is, therefore, to increase the effective circulating blood volume. Whole blood or plasma transfusion is often satisfactory, but, when severe circulatory collapse is present, the shock may not resolve with this therapy alone. Inasmuch as the primary problem appears to be a loss of vasomotor tone,[1] vasopressor drugs theoretically should have a desirable therapeutic effect.

PHARMACOLOGY OF ARTERENOL

Arterenol (nor-epinephrine) is an amine that has been proved a potent vasopressor drug in man.[10] Its presence has been shown in the adrenal medulla of cattle,[11] and it undoubtedly plays an important role in impulse transmission in postganglionic adrenergic nerves.[12] It has been found in high concentration in pheochromocytomas,[13] and an etiological relationship to essential hypertension has been suggested.[8b]

In the isolated surviving coronary arteries of healthy, slaughtered swine, arterenol is said to produce two and one-half times the vasodilatation produced by *l*-epinephrine.[14] Arterenol causes significant increases in coronary artery blood flow in animals,[15] although a decreased coronary flow has been reported with small doses.[16] It has been suggested that the coronary vasodilatation may be wholly or partly secondary to stimulation of the myocardium.[17]

In man, arterenol causes generalized vasoconstriction of arterial, capillary, and venous blood vessels and a resultant increase in total peripheral resistance.[8b] It tends to slow the pulse rate, an effect abolished by atropine. It produces an increase in cerebrovascular resistance and a decrease in cerebral blood flow, despite the increase produced in mean arterial blood pressure, and no significant change in oxygen consumption.[18] Sensenbach and Ochs[19] found, however, no significant fall in cerebral blood flow. Arterenol produces a decrease in renal plasma flow, leaves the glomerular filtration rate relatively unchanged, and usually produces an increase in urine flow.[20]

Arterenol has been used effectively to prevent hypotensive phases during sympathectomy,[21] and Goldenberg and his associates[3b] have used it successfully in treatment of patients with oligemic shock in whom blood therapy alone was not satisfactory. No serious cardiac arrhythmias were reported during its administration, and surprisingly few subjective sensations were manifest, despite pressor effects of considerable magnitude. Baker

---

The arterenol (Levophed) used in this study was supplied by Winthrop-Stearns, Inc., New York.

From the Cardiovascular Department, Medical Research Institute, and the Department of Medicine, Michael Reese Hospital.

Because of space limitations, table 1 and all of the bibliographic references have been omitted from THE JOURNAL and will appear in the authors' reprints.

This study was aided by the Michael Reese Research Foundation, a grant from Winthrop-Stearns, Inc., New York, and the Herbert G. Mayer Memorial Fund for Cardiovascular Research.

Cases 2 and 3 are reported with the permission of Dr. Lyle A. Baker, Chief, Department of Medicine, Veterans Administration Hospital, Hines, Ill. Dr. Lester Baker made abstracts of the records of these cases.

and one of us (A.J.M.)[3a] observed no undesirable effects on the prevailing cardiac rhythm or the subjective status during the administration of arterenol to patients in shock following acute myocardial infarction. Pressor responses were obtained in six of seven patients studied. Recently, Kurland and Malach[3d] reported significant pressor responses in 12 of 17 courses of treatment in 14 patients in cardiogenic shock. They also confirmed the absence of untoward cardiac rhythms or subjective reactions during the use of arterenol.

METHOD

Thirty-two patients in shock from various causes were treated with arterenol, the arterenol being used in addition to other appropriate measures. All the patients were severely ill. The duration of shock prior to the institution of arterenol therapy varied. The degree of shock present in each case was arbitrarily classified as "moderate," "severe," or "profound," on the basis of an impression of each patient's clinical status. Vasopressor responses were classified as "excellent" when the blood pressure was elevated to within normal limits, "fair" when the blood pressure rose but did not reach the normal range, and "poor" when little or no blood pressure response was obtained.

Table 2.—*Results of Arterenol Therapy Classified According to Probable Major Cause of Shock*

Cause of Shock	No. of Patients	Pressor Response			No. of Patients Obtaining Improvement From Shock State	No. of Patients Surviving Illness
		Excellent *	Fair †	Poor ‡		
Myocardial infarction	9	8	..	1	8	5
Virus pleuropericarditis	1	1	..	..	1	1
Acute coronary insufficiency	1	1	..	..	1	1
Pulmonary embolization	2	2	..	..	2	1 §
Massive gastrointestinal hemorrhage	3	2	1	..	3	0 ‖
Barbiturate intoxication	1	1	..	..	1	1
Anaphylactic shock	1	1	..	..	1	1
Ruptured ectopic pregnancy	1	1	..	..	1	1
Empyema of gallbladder	1	1	..	..	1	1
Bulbar poliomyelitis; acute myocarditis	1	1	..	..	1	0
Pneumonia	3	1	2	..	1	0 ¶
Pneumonia; acute myocarditis	1	..	..	1	0	0
Miscellaneous	7	5	2	..	5	0 #
Total	32	25	5	2	26	12

* Systolic arterial blood pressure raised to 100 mm. Hg or higher.
† Systolic arterial blood pressure significantly elevated but lower than 100 mm. Hg.
‡ No elevation in systolic arterial blood pressure.
§ The other patient died 21 days after the episode of shock.
‖ One patient died six days after an emergency subtotal gastric resection; one had carcinoma of the colon with generalized metastases.
¶ One patient died nine days after the episode of shock.
# In four patients the ultimate prognosis was hopeless.

The solutions for infusion were generally prepared by adding 4 cc. of a 1:1,000 solution of arterenol to 1,000 cc. of 5% glucose in water or 0.9% sodium chloride in water. (In one instance arterenol was added to plasma). The resultant solution contained 4 μg of arterenol (as the bitartrate) per cubic centimeter. When it was desired to limit the total amounts of fluid administered, arterenol solutions were prepared in greater concentration (e. g., 16 μg or more per cubic centimeter).

The infusions were begun in one of two ways. Usually, they were started at the rate of 10 to 15 drops per minute and increased by about 5 drops every three minutes, until the desired blood pressure was obtained. Frequently, the rate of administration was initially fairly rapid (e. g., 60 drops per minute) and then was adjusted to hold the blood pressure at the desired level with the minimum rate of administration. The infusions were stopped by decreasing the rates of flow by small amounts and observing the effect on the blood pressure. If the blood pressure tended to fall, arterenol therapy was continued; if the blood pressure maintained itself, the rate of infusion was decreased gradually and finally stopped. Ordinary intravenous infusion sets were used, no attempt being made to calibrate the exact amounts of drug given per unit time.

RESULTS

The results of treatment are summarized in tables 1 and 2. Thirty-two patients were treated for 40 episodes of shock. A satisfactory pressor response was obtained in 33 instances; in 5 instances the blood pressure was raised but not out of shock levels; in the remaining 2 there was no pressor response. In half the patients studied cardiogenic factors were primary or of major importance in the initiation of shock, and in the other half the shock was primarily noncardiac in origin.

Nine patients had shock following acute myocardial infarction. In eight, excellent pressor responses were obtained; two (cases 24 and 27, table 1) were relieved of shock on two separate occasions, and one other (case 32, table 1) had a satisfactory pressor response during each of the five episodes of hypotension. Five of the nine patients survived, two of whom (cases 27 and 24, table 1) were having, respectively, their second and third myocardial infarctions. Three of the five surviving patients and two of the four who eventually died were digitalized before or during arterenol therapy. Only one of the nine patients (case 10, table 1) was in known shock for longer than three hours before arterenol treatment was begun. This patient, who had severe hypertension and chronic congestive heart failure prior to coronary occlusion, died despite the achievement of a good pressor response (not, however, to previous levels) with arterenol. In one patient (case 13, table 1) 500 cc. of whole blood was given intra-arterially during the time arterenol was being infused and had already resulted in a moderate pressor response. This patient died more than 20 hours after arterenol therapy was started, despite elevation of the blood pressure to 100/80.

Three patients treated for shock had acute myocarditis in addition to another basic disease process. All three died, although two had excellent pressor responses. All were digitalized. One patient (case 21, table 1) with bulbar poliomyelitis survived for more than 36 hours after arterenol therapy was instituted. There was no doubt of the efficacy of arterenol in maintaining the blood pressure, although very large dosages were required.

One patient in shock associated with virus pleuropericarditis and pleural effusion (case 23, table 1) recovered after arterenol therapy. A digitalized patient in chronic congestive heart failure went into cardiogenic shock shortly after right heart catheterization (case 15, table 1). An electrocardiogram at this time was compatible with acute coronary insufficiency, and this was confirmed in a subsequent record. Arterenol resulted in remarkable improvement, the blood pressure being elevated from 50/? to 100/70. Thereafter the patient made an uneventful recovery. Two patients (cases 1 and 9, table 1) with pulmonary embolism were successfully treated for shock; the first survived for 21 days, while the other was discharged from the hospital after 20 days. Both patients were digitalized, and one received quinidine for frequent premature ventricular systoles.

Sixteen patients were treated for shock of noncardiac origin. Three (cases 2, 3, and 16, table 1) were treated for shock following massive gastrointestinal blood loss until whole blood could be obtained; in two of these excellent vasopressor results were achieved. Two patients (cases 12 and 30, table 1) treated for shock after rupture of the abdominal and thoracic aortas, respectively, had excellent blood pressure rises. Successful relief from shock was obtained in one patient (case 11, table 1) with a ruptured ectopic pregnancy and in another patient (case 29, table 1) with empyema of the gallbladder. In both instances arterenol treatment permitted surgical intervention, and both patients survived. Vasopressor therapy was successfully used in a patient with barbiturate intoxication (case 4, table 1); this patient survived deep coma and two separate episodes of severe shock.

A dramatic result was achieved in a patient with anaphylactic shock (case 28, table 1), the blood pressure being quickly raised from 40/0 to 110/80. Treatment was necessary for only one-half hour, during which time erythematous wheals on the arms and face showed considerable improvement. One patient (case 19, table 1) who survived a period of shock following myocardial infarction also had serum sickness, a diffuse erythema, and urticaria. While arterenol was being given, the erythema showed considerable improvement, and the urticaria almost disappeared. When arterenol therapy was stopped, the urticaria recurred.

Arterenol was given continuously in this series of patients for ½ to 36 hours, with ill effects becoming manifest. All except one of the patients had rapid heart rates; arterenol slowed the rates in some. In no instance was the rhythm altered. One patient had advanced atrioventricular block, four had multiple premature systoles, and one had auricular fibrillation. Congestive heart failure was neither precipitated nor manifestly aggravated by arterenol. In 14 patients, digitalis or one of its derivatives was used before or during arterenol treatment. All of the patients treated in this series were gravely ill, and permission was often given for arterenol to be used only as an heroic measure. In five patients (cases 7, 12, 14, 16, and 30, table 1) it was known that the ultimate prognosis was hopeless, and arterenol was used only to evaluate its pressor effect. The noteworthy local complications of arterenol therapy were few. One patient who survived an episode of shock subsequently had sloughs of skin from the dorsal surfaces of each hand at the sites of the venipunctures. Another patient had thrombosis of an antecubital vein. Blanching of the skin near the site of venipuncture was observed often.

COMMENT

The results of the present study definitely establish arterenol as a valuable adjuvant in the treatment of shock. It was effective in treatment of shock due to blood loss; nevertheless, oligemic shock should be treated with this drug alone only as a means of interim care until blood and/or plasma is obtained. Its prolonged use alone may mask continued blood loss, and there is no evidence that arterenol, by virtue of its vasoconstrictor action, tends to stop or slow bleeding. In cases in which intravenous administration of whole blood alone is not effective in reversing shock due to blood loss, the use of vasopressor therapy would appear to be mandatory. This study and others cited revealed no undesirable responses from the use of arterenol in treatment of oligemic shock. Further experience may establish that the immediate utilization of arterenol along with whole blood is the most conservative method of treating severe shock, the aim of good therapy being to reverse the state of shock as quickly as possible. Finally, arterenol may prove of increasing value in patients with persistent blood loss who require emergency surgery.

Our results confirm the absence of enhanced myocardial irritability, as evidenced by clinical criteria, when arterenol is administered to patients in severe shock following myocardial infarction. There was also no evidence of increased myocardial irritability when arterenol was used to treat shock in myocarditis and pulmonary embolism. There was no instance of untoward effect on the prevailing cardiac rhythm, and no undesirable subjective reactions were observed. The relief of hypotension was generally associated with objective evidence of clinical improvement. The over-all survival rate of patients in cardiogenic shock was higher than in a study previously reported by Baker and one of us (A.J.M.)[3a]; however, in the previous study the criteria for treatment demanded a systolic blood pressure of 80 mm. Hg or less and a duration of shock of at least four hours. Thus, the prognosis for those patients was extremely grave. The better results obtained in the present study are probably in part a reflection of the earlier treatment of the shock. We believe that severe cardiogenic shock demands therapy and agree with Hellerstein and Brofman[9] that the most efficacious method of treatment now available is use of vasopressor drugs. Inasmuch as arterenol has proved a relatively safe drug when used with proper precautions, there need be no procrastination about the institution of early therapy. It is important to remember, however, that this drug can in no way replace the standard treatment measures for complications of cardiogenic shock or events occurring concomitantly with it. Such problems as congestive heart failure, embolic phenomena, and cardiac arrhythmias should be treated by the known and appropriate measures. Digitalis or its derivatives should be used without hesitation in the treatment of congestive heart failure. Arterenol produced impressive vasopressor responses in patients with shock that was not primarily of oligemic or cardiac origin. Use of vasopressor drugs would seem logical when the primary defect is a loss of vasomotor tone.

Experience with the use of arterenol has shown that there occasionally is a need for large dosages to achieve a satisfactory vasopressor response. No undesirable effects were noted with doses as high as 100 drops per minute of a solution containing 32 μg of arterenol bitartrate per cubic centimeter. Sometimes relatively small amounts of arterenol have produced excellent vasopressor results, and it is for this reason that we suggest starting the infusion slowly and gradually increasing the rate of administration until the desired arterial blood pressure is attained. We believe it advisable to decrease the rate of flow slowly when the infusion is to be discontinued, rather than to stop it abruptly.

The considerable amount of investigative work with arterenol, although sometimes contradictory, generally points to the increasing value of this drug in clinical medicine. Final evaluation will have to await studies of larger numbers of patients with various types of shock. One problem that has arisen, on which the present investigation sheds little light, is the unpredictability of arterial blood pressure responses to particular dosages of arterenol. Fritz and Levine [22] and Ramey, Goldstein, and Levine [23] have shown that dogs whose adrenals have been removed do not show the same response to arterenol as normal control dogs, that arterial blood pressure cannot be maintained by continuous infusion of arterenol as in normal controls, and that the mesoappendix of the rat without adrenals becomes refractory to repeated topical applications of arterenol. The diminution or lack of response in animals whose adrenals have been removed was reversed by administration of adrenal cortex extract.

This work may have clinical application in episodes of shock not responsive to arterenol or in those in which very large doses of the drug are required to obtain a pressor response. In some of these patients, adrenal "exhaustion," with diminished secretion of adrenal cortical hormones, may diminish blood vessel reactivity to arterenol. Two other factors must also be considered, however. It is undoubtedly true that in certain instances of shock, or at certain times in the sequence of events leading to the clinical picture of shock, maximal vasoconstriction is already present owing to intrinsic compensatory mechanisms. Arterenol would not be expected to have a significant vasopressor action under such circumstances if its role is solely that of a vasoconstrictor. The experiences reported here show that arterenol generally does raise the arterial blood pressure in patients in shock. Our data cannot, however, be used to elucidate the mechanism by which this result is obtained. The presumptive evidence, from studies in normal persons, indicates the major factor to be one of increased peripheral resistance secondary to vasoconstriction, but the factor of increased cardiac output remains a possibility when shock is present. Studies in normal persons, though of definite value, cannot be directly transposed to explain why arterenol raises the blood pressure in persons with shock. It definitely can be stated that, if increased cardiac output is a factor, it does not occur by means of an increase in heart rate.

Thus, failure to obtain a satisfactory rise in arterial blood pressure in patients in shock by treatment with arterenol may be dependent on (1) an inability of the blood vessels to respond with sufficient vasoconstriction, (2) the presence of maximal vasoconstriction before arterenol is given, or (3) the inability of the heart to respond with an increased output. More than one of these factors may be operative. In the light of our results, we consider the second possibility to be unlikely in cases of severe or profound shock from any cause. The first possibility, already demonstrated by Levine and his group [24] in animals, will require confirmation in man. The evaluation of the relative roles of alterations in cardiac output and total peripheral resistance in response to arterenol used in treatment of shock will have to await appropriate studies.

SUMMARY

Arterenol, a pressor amine, has been used in the treatment of 40 episodes of shock from various causes in 32 patients. Nine patients were in shock following acute myocardial infarction. Excellent pressor responses were obtained with treatment in 25 of the 32 patients; in five patients the pressor response was moderate, and in two there was no response. The results strongly suggest arterenol to be a valuable adjuvant to the therapy of shock. There was no evidence that arterenol increased myocardial irritability. No undesirable subjective reactions were noted. In no instance was heart failure precipitated or aggravated by arterenol, and there were no apparent ill effects in patients digitalized before or during arterenol therapy. Further evidence for the value of vasopressor therapy in the treatment of cardiogenic shock is given. Arterenol was effective as interim therapy of oligemic shock until whole blood could be obtained. It was of value in the treatment of shock associated with barbiturate intoxication, bulbar poliomyelitis, virus pleuropericarditis, ruptured ectopic pregnancy, and empyema of the gallbladder. Anaphylactic shock was also successfully treated.

29th St. and Ellis Ave. (16) (Dr. Katz).

Health and Obesity.—Obesity is both disadvantageous and dangerous. . . . Obesity predisposes to diabetes, increases the tendency to hypertension, favors the development of atherosclerosis and contributes to heart failure. It increases the incidence of gallstones. It causes shortness of breath on exertion, intolerance to heat and excessive sweating. It leads to maceration, intertrigo, eczema and furunculosis. It fosters the development of postural emphysema, flat feet, hernia and osteoarthritis of the hips and knees. In every physical activity, its presence constitutes a burden varying only with the degree of adiposity. It is unesthetic, socially unacceptable and psychologically crippling. It shortens a life that has been made ridiculous and miserable by its presence.—D. P. Barr, M.D., Health and Obesity, *New England Journal of Medicine,* June 4, 1953.

NEW APPROACH TO THE TREATMENT OF INTRACTABLE VERRUCA PLANTARIS (PLANTAR WART)

Henri L. DuVries, M.D., Chicago

It is not generally appreciated that new growths of the skin on the plantar surface, especially those occurring under the heads of the metatarsals or any weight bearing area of the foot, often become a major disabling problem. A pebble or nail inside a shoe can make standing or walking next to impossible; a deep-seated callus or residual scar can do likewise, if located under a weight bearing area. The disability these growths may cause varies from a constant discomfort to complete inability to bear weight over the area. The patient often states that bearing weight on the area is like "stepping on a tack."

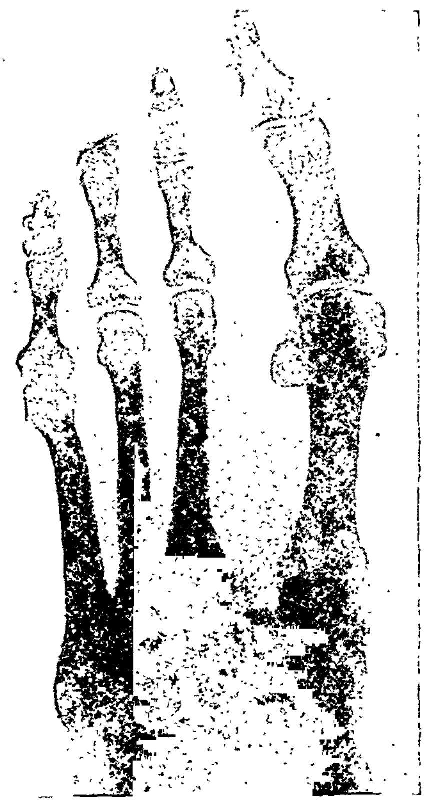


Fig. 1*B*.—Postoperative view of foot with intractable verruca plantaris under the second left metatarsal head after Dickson's procedure.

That some authorities have been aware of the seriousness of these problems is attested to by the drastic operations they have recommended. Dickson [1] suggests excision of the entire metatarsal shaft, together with dorsal and plantar soft structures covering it, including the toe. In regard to this procedure, a 42-year-old woman was first seen by me in February, 1952, with the complaint of an intractable verruca plantaris under the second left metatarsal head. A few days before the appointed date for surgery, Dickson's procedure was performed elsewhere. I saw her again in February, 1953, when she presented a linear scar studded with multiple clavi along the medial side of the entire shaft of the third metatarsal. She is more incapacitated than formerly (fig. 1). Blair [2] advises excision of the growth and its surrounding tissue and pedicle grafting from a non-weight-bearing surface of the sole of the foot.

Formation of this type of new growth occurs most frequently under the middle three metatarsal heads (fig. 2*A*). It is in this area that they oftenest become intractable and are usually referred to as plantar warts. It is open to question whether many of these growths are verrucae. I see many seed-like calluses under the plantar condyle surfaces of the metatarsal heads, containing white connective tissue fibers of a reactive fibrosis, secondary to the prolonged trauma of pivotal weight-bearing on a pointed condyle. Such a callus is often diagnosed as verruca plantaris and treated by irradiation, escharotics, electrodesiccation, or surgical excision of the mass. Many patients have been treated by all of these methods. The mass of scar tissue resulting from each type of treatment has been greater than the original excrescence, with increased disability. A comparable but less disabling condition occurs under the head of the first metatarsal and is usually due to an anomalous or hypertrophied tibial hallux sesamoid. New growths are uncommon under the head of the fifth metatarsal, but minor callosities are common.

The plantar surface of the head of each metatarsal has two condylar projections. Those of the middle three metatarsals end in sharp points extending proximally (fig. 2*B*). The condyle on the fibular side is always the larger. Because depression of the anterior arch is nearly a universal malady of civilized man, these condyles assume full weight bearing function. During walking they bear an added pivotal backward thrust for a short period during each step. This thrust results in the condylar points gouging into the soft understructures. These projections vary in size and shape from one metatarsal to another and in different persons. The plantar condyles of these metatarsals may vary from a mere rudiment to a projection higher than any other weight bearing point under all the metatarsal heads and from a ball-like surface to a pinpoint (fig. 2*B* and 2*C*). The sharper and more projective the condylar points the more the person is subject to fibrotic changes in the skin and subcutaneous tissue of this area. The skin under such a condyle accumulates horny cells as a protective measure, and a vicious cycle is produced: the greater the accumulation of horny layers the less space between the condylar surface and contact area, resulting in further compression of the soft tissues covering these areas and their gradual degeneration.

From the Department of Surgery, Columbus Hospital.

Because of lack of space, some of the figures and reports of cases have been omitted from THE JOURNAL and will appear in the author's reprints.

[1] Dickson, J. A.: Surgical Treatment of Intractable Plantar Warts, J. Bone & Joint Surg. 30A: 757 (July) 1948.

[2] Blair, V. P.; Brown, J. B., and Byars, L. T.: Plantar Warts, Flaps and Grafts, J. A. M. A. 108: 24 (Jan. 2) 1937.

TREATMENT

In the past four years, I have excised 23 plantar condyles of the metatarsal heads of 21 patients, aged 23 to 62 years, with intractable growths immediately under the head concerned. There was complete relief in the majority of cases and marked improvement in all others. Fourteen (64%) of the patients were women. One woman and one man had growths bilaterally: in the woman the second metatarsal head of both feet were involved, whereas in the man the third metatarsal head of both feet were so afflicted. The second metatarsal head was involved in 12 cases (52%), the third in 8 cases (34%), and the fourth in 3 cases (13%). Three of the patients had had no previous treatment, five had had electrodesiccation and escharotics, four had had electrodesiccation, escharotics, and radiation therapy, three had had just radiation therapy, two just escharotics, two electrodesiccation, escharotics, radiation therapy, and excision, and one each just excision and electrodesiccation only.

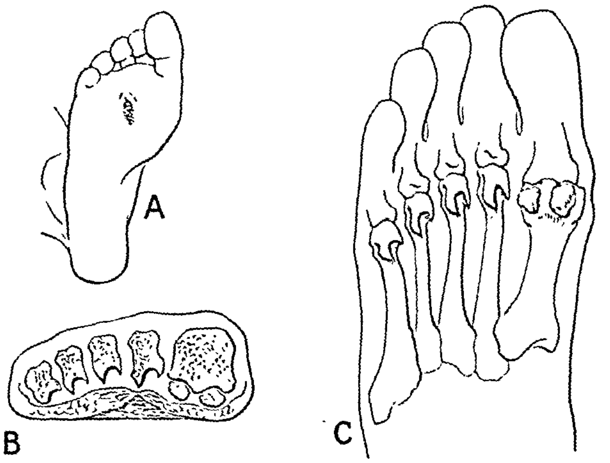


Fig. 2.—Location of verruca plantaris in plantar area. *A*, usual appearance of a new growth or scar under a metatarsal head. *B*, cross section of metatarsal head 0.5 cm. behind articular surface, showing condylar process. *C*, plantar view of metatarsal heads. Note that the fibular condylar process is normally the larger.

An incision is made immediately over the involved metatarsal phalangeal joint. The skin and extensor tendon are retracted, and the capsule is incised longitudinally (fig. 3). The capsule is then retracted with the skin margins, and a vertical incision is made in each side of the joint capsule (fig. 4); this frees the head of the metatarsal so that it can be delivered dorsally. The involved toe is plantar-flexed by the thumb of the surgeon's left hand, while the index finger of the same hand is applying pressure on the plantar surface of the metatarsal. This delivers the head of the metatarsal out of the wound (fig. 5). The plantar condyle is now amputated (fig. 6), and the surface is smoothed and rounded with a Joseph nasal rasp (fig. 7*A*). The capsule is closed with interrupted sutures (fig. 7*B*), and the skin margins are sutured.

REPORT OF CASES

Case 1.—The patient was a 54-year-old white male barber. For 10 years he had had a callus under the head of each third metatarsal. About seven years ago the condition was diagnosed as verruca plantaris, and electrodesiccation was employed, without relief. Two years later the growths were irradiated. Increase in size of the growths and resultant disability compelled the patient to give up barbering in 1950, because of inability to stand. Physical examination and routine laboratory findings were normal. In September, 1950, I removed the plantar condyles immediately over the growths. The patient was able to return to work, practice his trade two months later, and is to this day free from pain.

Case 2.—A 32-year-old white female waitress, in the spring of 1950, noted a growth under the second right metatarsal head, which was painful on weight bearing. The mass was diagnosed as verruca plantaris and excised. It recurred soon after healing of the wound. Some months later it was treated by electrodesiccation; again it recurred, more painful than ever. This was followed by many attempts to destroy the growths by escharotics. She first came under my care Sept. 8, 1952, with the complaint of inability to retain employment because she was unable to bear weight on the ball of her right foot.

On examination I found a cicatrix 2.5 by 1 cm. under the head of the right second metatarsal, whose center contained papillary formation resembling verruca tissue surrounded by scar (fig. 8). The mass was not adherent but penetrated the subcutaneous tissue and fascia. Results of routine physical examination and usual laboratory tests were normal. On Sept. 29, 1952, the plantar condylar surface of the second right metatarsal head was excised. The patient made an uneventful recovery and was able to bear weight comfortably on the ball of her right foot three weeks postoperatively. Since then the mass has almost disappeared (fig. 9), and she is completely free of pain.

SUMMARY

Verruca plantaris (plantar wart) and deep-seated calluses occur commonly under the metatarsal heads and often become a major disabling problem. Prevailing treatment often leaves disabling residual scar, and the radical procedures performed on intractable cases produce deformity. A new surgical approach to alleviate this malady is outlined. Twenty-one cases that have been successfully treated by this procedure are recorded.

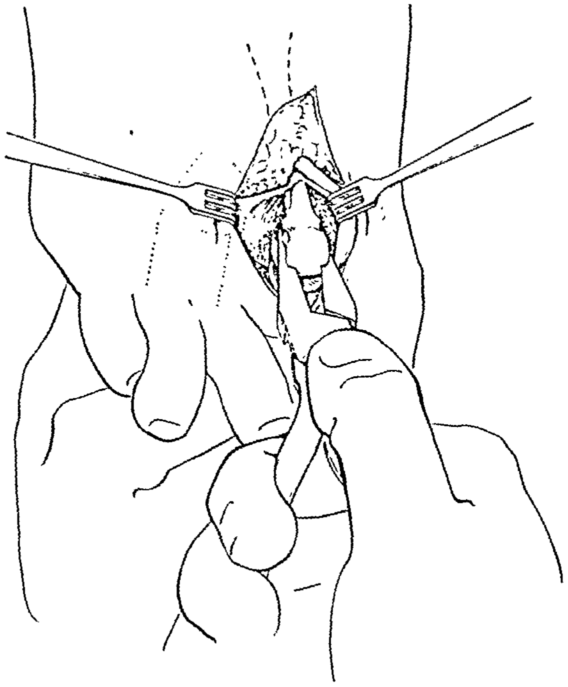


Fig. 6.—The condylar process is amputated with a Horsley cutting forceps.

25 E. Washington St.

NEW APPROACH TO THE TREATMENT OF INTRACTABLE VERRUCA PLANTARIS (PLANTAR WART)

Henri L. DuVries, M.D., Chicago

It is not generally appreciated that new growths of the skin on the plantar surface, especially those occurring under the heads of the metatarsals or any weight bearing area of the foot, often become a major disabling problem. A pebble or nail inside a shoe can make standing or walking next to impossible; a deep-seated callus or residual scar can do likewise, if located under a weight bearing area. The disability these growths may cause varies from a constant discomfort to complete inability to bear weight over the area. The patient often states that bearing weight on the area is like "stepping on a tack."

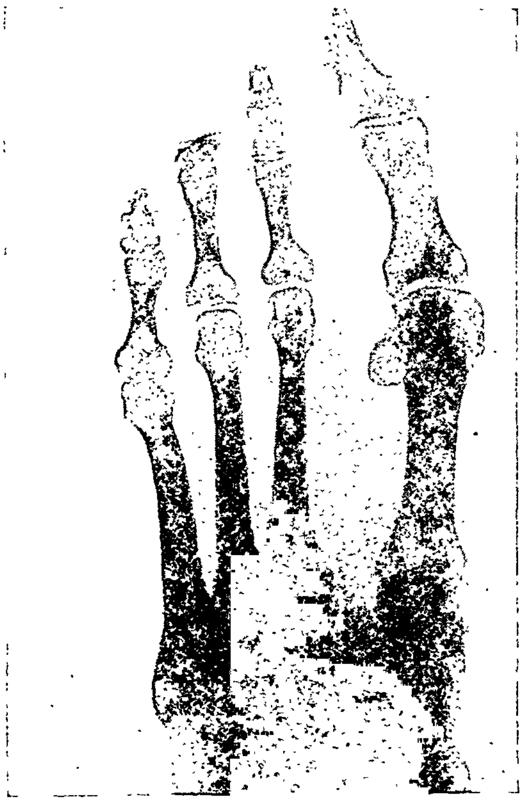


Fig. 1*B*.—Postoperative view of foot with intractable verruca plantaris under the second left metatarsal head after Dickson's procedure.

That some authorities have been aware of the seriousness of these problems is attested to by the drastic operations they have recommended. Dickson [1] suggests excision of the entire metatarsal shaft, together with dorsal and plantar soft structures covering it, including the toe. In regard to this procedure, a 42-year-old woman was first seen by me in February, 1952, with the complaint of an intractable verruca plantaris under the second left metatarsal head. A few days before the appointed date for surgery, Dickson's procedure was performed elsewhere. I saw her again in February, 1953, when she presented a linear scar studded with multiple clavi along the medial side of the entire shaft of the third metatarsal. She is more incapacitated than formerly (fig. 1). Blair [2] advises excision of the growth and its surrounding tissue and pedicle grafting from a non-weight-bearing surface of the sole of the foot.

Formation of this type of new growth occurs most frequently under the middle three metatarsal heads (fig. 2*A*). It is in this area that they oftenest become intractable and are usually referred to as plantar warts. It is open to question whether many of these growths are verrucae. I see many seed-like calluses under the plantar condyle surfaces of the metatarsal heads, containing white connective tissue fibers of a reactive fibrosis, secondary to the prolonged trauma of pivotal weight-bearing on a pointed condyle. Such a callus is often diagnosed as verruca plantaris and treated by irradiation, escharotics, electrodesiccation, or surgical excision of the mass. Many patients have been treated by all of these methods. The mass of scar tissue resulting from each type of treatment has been greater than the original excrescence, with increased disability. A comparable but less disabling condition occurs under the head of the first metatarsal and is usually due to an anomalous or hypertrophied tibial hallux sesamoid. New growths are uncommon under the head of the fifth metatarsal, but minor callosities are common.

The plantar surface of the head of each metatarsal has two condylar projections. Those of the middle three metatarsals end in sharp points extending proximally (fig. 2*B*). The condyle on the fibular side is always the larger. Because depression of the anterior arch is nearly a universal malady of civilized man, these condyles assume full weight bearing function. During walking they bear an added pivotal backward thrust for a short period during each step. This thrust results in the condylar points gouging into the soft understructures. These projections vary in size and shape from one metatarsal to another and in different persons. The plantar condyles of these metatarsals may vary from a mere rudiment to a projection higher than any other weight bearing point under all the metatarsal heads and from a ball-like surface to a pinpoint (fig. 2*B* and 2*C*). The sharper and more projective the condylar points the more the person is subject to fibrotic changes in the skin and subcutaneous tissue of this area. The skin under such a condyle accumulates horny cells as a protective measure, and a vicious cycle is produced: the greater the accumulation of horny layers the less space between the condylar surface and contact area, resulting in further compression of the soft tissues covering these areas and their gradual degeneration.

From the Department of Surgery, Columbus Hospital.

Because of lack of space, some of the figures and reports of cases have been omitted from THE JOURNAL and will appear in the author's reprints.

[1] Dickson, J. A.: Surgical Treatment of Intractable Plantar Warts, J. Bone & Joint Surg. 30A: 757 (July) 1948.

[2] Blair, V. P.; Brown, J. B., and Byars, L. T.: Plantar Warts, Flaps and Grafts, J. A. M. A. 108: 24 (Jan. 2) 1937.

TREATMENT

In the past four years, I have excised 23 plantar condyles of the metatarsal heads of 21 patients, aged 23 to 62 years, with intractable growths immediately under the head concerned. There was complete relief in the majority of cases and marked improvement in all others. Fourteen (64%) of the patients were women. One woman and one man had growths bilaterally: in the woman the second metatarsal head of both feet were involved, whereas in the man the third metatarsal head of both feet were so afflicted. The second metatarsal head was involved in 12 cases (52%), the third in 8 cases (34%), and the fourth in 3 cases (13%). Three of the patients had had no previous treatment, five had had electrodesiccation and escharotics, four had had electrodesiccation, escharotics, and radiation therapy, three had had just radiation therapy, two just escharotics, two electrodesiccation, escharotics, radiation therapy, and excision, and one each just excision and electrodesiccation only.

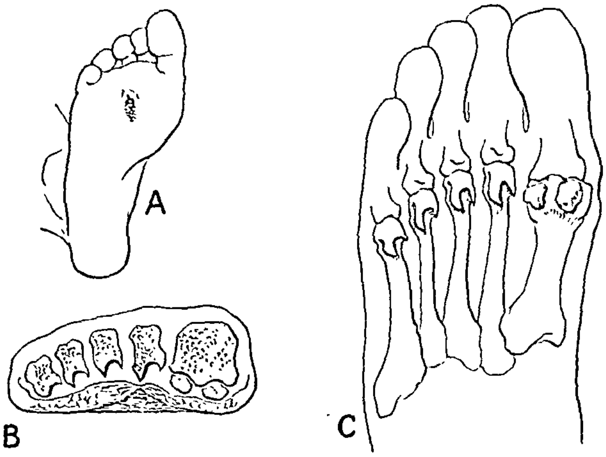


Fig. 2.—Location of verruca plantaris in plantar area. *A*, usual appearance of a new growth or scar under a metatarsal head. *B*, cross section of metatarsal head 0.5 cm. behind articular surface, showing condylar process. *C*, plantar view of metatarsal heads. Note that the fibular condylar process is normally the larger.

An incision is made immediately over the involved metatarsal phalangeal joint. The skin and extensor tendon are retracted, and the capsule is incised longitudinally (fig. 3). The capsule is then retracted with the skin margins, and a vertical incision is made in each side of the joint capsule (fig. 4); this frees the head of the metatarsal so that it can be delivered dorsally. The involved toe is plantar-flexed by the thumb of the surgeon's left hand, while the index finger of the same hand is applying pressure on the plantar surface of the metatarsal. This delivers the head of the metatarsal out of the wound (fig. 5). The plantar condyle is now amputated (fig. 6), and the surface is smoothed and rounded with a Joseph nasal rasp (fig. 7*A*). The capsule is closed with interrupted sutures (fig. 7*B*), and the skin margins are sutured.

REPORT OF CASES

Case 1.—The patient was a 54-year-old white male barber. For 10 years he had had a callus under the head of each third metatarsal. About seven years ago the condition was diagnosed as verruca plantaris, and electrodesiccation was employed, without relief. Two years later the growths were irradiated. Increase in size of the growths and resultant disability compelled the patient to give up barbering in 1950, because of inability to stand. Physical examination and routine laboratory findings were normal. In September, 1950, I removed the plantar condyles immediately over the growths. The patient was able to return to work, practice his trade two months later, and is to this day free from pain.

Case 2.—A 32-year-old white female waitress, in the spring of 1950, noted a growth under the second right metatarsal head, which was painful on weight bearing. The mass was diagnosed as verruca plantaris and excised. It recurred soon after healing of the wound. Some months later it was treated by electrodesiccation; again it recurred, more painful than ever. This was followed by many attempts to destroy the growths by escharotics. She first came under my care Sept. 8, 1952, with the complaint of inability to retain employment because she was unable to bear weight on the ball of her right foot.

On examination I found a cicatrix 2.5 by 1 cm. under the head of the right second metatarsal, whose center contained papillary formation resembling verruca tissue surrounded by scar (fig. 8). The mass was not adherent but penetrated the subcutaneous tissue and fascia. Results of routine physical examination and usual laboratory tests were normal. On Sept. 29, 1952, the plantar condylar surface of the second right metatarsal head was excised. The patient made an uneventful recovery and was able to bear weight comfortably on the ball of her right foot three weeks postoperatively. Since then the mass has almost disappeared (fig. 9), and she is completely free of pain.

SUMMARY

Verruca plantaris (plantar wart) and deep-seated calluses occur commonly under the metatarsal heads and often become a major disabling problem. Prevailing treatment often leaves disabling residual scar, and the radical procedures performed on intractable cases produce deformity. A new surgical approach to alleviate this malady is outlined. Twenty-one cases that have been successfully treated by this procedure are recorded.

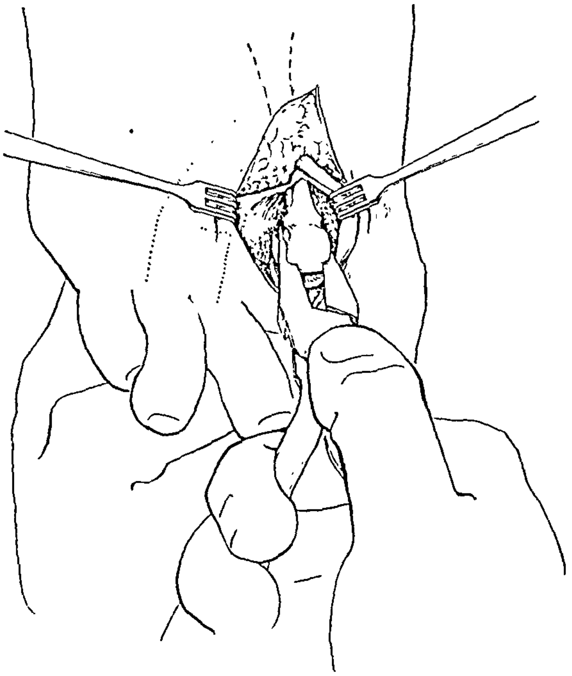


Fig. 6.—The condylar process is amputated with a Horsley cutting forceps.

25 E. Washington St.

CLARIFICATION OF SYPHILITIC AND NONSYPHILITIC SERODIAGNOSTIC REACTIONS

Reuben L. Kahn, D.Sc., Ann Arbor, Mich.

In general practice, the following questions often arise in relation to syphilitic and nonsyphilitic serodiagnostic reactions: How is it possible for serum reactions employing lipid antigens apparently unrelated to Treponema pallidum to behave as though they were specifically associated with syphilis, indicated by the remarkable parallelism between serologic and clinical findings in this disease? How can these same serum reactions also behave as though they were totally unrelated to syphilis, as shown by instances of biologically false positive reactions in various nonsyphilitic situations? If a positive serodiagnostic reaction in syphilis indicates the existence of this disease, what is the meaning of a positive reaction in the absence of syphilis? To answer these questions, it will be necessary to examine the relationship between the serodiagnostic reaction and the more comprehensive universal serologic reaction.[1]

THE UNIVERSAL REACTION

Serodiagnostic reactions stem from the universal serologic reaction. The universal reaction is a lipid antigen-antibody precipitation reaction that has given positive results in all human beings and animals tested thus far. The results in different human beings are differentiated by serologic patterns. The serologic pattern of a given person in health is constant. In the presence of pathological conditions, the universal reaction undergoes intensification after an incubation period of about two weeks; on recovery, the reaction reverts to normal. Table 1 shows a universal reaction in a normal person. Seven serum dilutions, each made with sodium chloride solutions of seven different concentrations, were employed. After the serum was mixed with the lipid antigen, the precipitation results were observed prior to incubation and again after 4 and 24 hours' incubation at refrigerator temperature (5 C). The precipitation results listed in table 1 are shown in figure 1. A characteristic common to universal reactions in healthy persons is that little or no precipitation is noted without incubation of the serum-antigen mixture (first section of figure 1); precipitation, illustrated by the cross hatched areas, makes its appearance after 4 hours' incubation (second section of figure 1) and is usually intensified after 24 hours' incubation (third section of figure 1). (All the series of graphs in figures 2 and 3 have the same construction as that in figure 1.)

RELATIONSHIPS BETWEEN UNIVERSAL AND SERODIAGNOSTIC REACTIONS

The ten sets of graphs in figure 2 illustrate universal reactions in health, syphilis, leprosy (nodular form), malaria (vivax), and tuberculosis and the relationship between universal and serodiagnostic reactions. In health, precipitation may be weak, as in graph series 1, stronger, as in graph series 2, or stronger still. In syphilis (graph series 3 and 4), precipitation is noted without incubation, and the degree of precipitation is almost the same after incubation; the serologic pattern is distinctive and is based presumably on the interaction between particular lipids and homologous antibodies; hence the reaction is lipid-specific. In leprosy (nodular form), the tendency toward precipitation on the left side of each of three sections of graph series 5 is greater than that on the right side, and the universal reaction is also lipid-specific, the serologic pattern being distinctive, although different from that in syphilis. The pronounced precipitation in graph series 6 is believed to be due to concurrent disease; graph series 5 is believed to represent the typical pattern. In malaria and tuberculosis, the serologic patterns (graph series 7 to 10) are nondistinctive and are considered nonspecific intensification of precipitation that occurs with the serum of normal persons (noted in graph series 1 and 2).

TABLE 1.—*Universal Serologic Reaction of Normal Human Serum to Lipid Antigen*

Serial Dilutions of Serum	Concentration of Sodium Chloride Solution Employed in Serum Dilution, %						
	0	0.15	0.6	0.9 *	1.2	1.8	2.1
Readings made without incubation							
1:256	—	—	—	—	—	—	—
1:64	—	—	—	—	—	—	—
1:16	—	—	—	—	—	—	—
1:8	—	—	—	—	—	—	—
1:4	—	—	—	—	—	—	—
1:2	±	—	—	—	—	—	—
Undiluted	1	—	—	—	—	—	—
Readings made after 4 hours' incubation in refrigerator							
1:256	—	—	—	—	—	—	—
1:64	1	—	—	—	—	—	4
1:16	2	±	—	—	—	2	4
1:8	4	4	—	—	—	3	4
1:4	4	4	—	—	—	4	4
1:2	4	4	—	—	—	4	4
Undiluted	4	4	—	—	—	4	4
Readings made after 24 hours' incubation in refrigerator							
1:256	4	±	—	—	—	2	4
1:64	4	3	—	—	—	3	4
1:16	4	4	—	—	—	4	4
1:8	4	4	—	—	—	4	4
1:4	4	4	—	—	±	4	4
1:2	4	4	—	—	2	4	4
Undiluted	4	4	—	—	4	4	4

* The conditions of the tests done with serum dilutions made with 0.9% sodium chloride solution and read without incubation are similar to those of the quantitative Kahn test.

The double cross hatched columns in graph series 3, 4, 5, 6, and 8 (fig. 2) represent quantitative serodiagnostic (Kahn) reactions. These reactions in graph series 3, 4, 5, and 6, being parts of lipid-specific universal reactions, are themselves lipid-specific; the reaction in graph series 8, being part of a nonspecific universal reaction, is nonspecific. The reactions in syphilis, leprosy, and malaria, being parts of different serologic patterns,

---

From the Department of Dermatology and Syphilology, University of Michigan Medical School, and the Serology Laboratory, University Hospital.

[1] (*a*) Kahn, R. L.: Serology with Lipid Antigen, with Special Reference to Kahn and Universal Reactions, Baltimore, Williams & Wilkins Company, 1950; (*b*) An Introduction to the Universal Serologic Reaction in Health and Disease, Cambridge, Mass., Harvard University Press, 1951; (*c*) Present Status of Universal Reaction in Health and Disease, Univ. Michigan M. Bull. **17**: 211-239 (July) 1951.

are the result of different lipid antigen-antibody reactivities. Thus, lipids S may be said to react with antibodies s in syphilis, lipids L with antibodies l in leprosy, and lipids M with antibodies m in malaria. These reactions between different lipids and homologous antibodies are not limited to a given test but apply to serodiagnostic tests in general, whether precipitation or complement fixation tests, since all such tests are based on lipid antigen-antibody reactions. Syphilitic and nonsyphilitic serodiagnostic reactions stem from the same biologically universal serologic response, as is evident in figure 2. This brings up the question of why it is that only the syphilitic reactions (and the related reactions in the treponemal diseases, yaws, pinta, and bejel[2]) are of clinical significance.

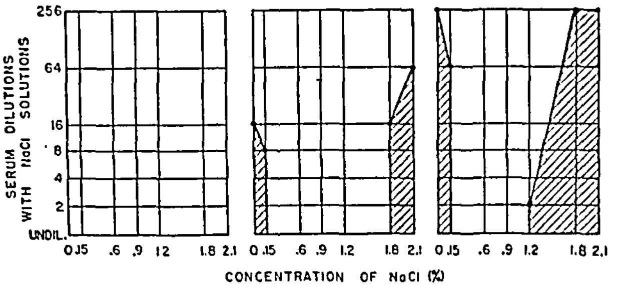


Fig. 1.—The plotting of the universal reaction precipitation results recorded in table 1. (This series of graphs forms the basis for those shown in figures 2 and 3.)

VALUE OF SERODIAGNOSTIC REACTIONS IN SYPHILIS

The clinical value of serodiagnostic reactions in syphilis is based on four factors: 1. In syphilis, as indicated, the serodiagnostic reaction is lipid-specific, the specificity being directed not against T. pallidum but against particular lipids set free presumably in pathological processes in this disease. 2. Since syphilis is a disease of moderate activity, high level antibody production is to be expected. Minimal activity and excessive activity are commonly forerunners of low antibody production. Malignant syphilis, accompanying excessive tissue breakdown, which was encountered years ago, generally led to negative serodiagnostic reactions. 3. Antibody production is continuous as a result of the chronic nature of the disease, and this leads to continuously positive serodiagnostic reactions. The serologic response in latent syphilis would indicate that subclinical syphilis processes in persons in whom the disease has existed for many years is sufficient for antibody production. The prolonged existence of an antibody-producing disease apparently results in a capacity for antibody production following minimal antigenic stimulation. In serologic fastness, the immunologic mechanism involved may be the same as that operative in the persistent positivity of the treponemal immobilization reaction (Moore and Mohr[3]) after adequate therapy in late syphilis. 4. The techniques of serodiagnostic testing are almost optimal for elicitation of positive reactions; for example, dilution or concentration of the lipids in standard Kahn antigen preparations will reduce their sensitivity to syphilitic serums.

These four factors apply also in the case of yaws, pinta, and bejel; hence, serodiagnostic reactions in these treponemal diseases have the same clinical value as they do in syphilis. These factors do not apply in leprosy, malaria, and tuberculosis. In many patients with leprosy disease activity is either minimal or excessive; only when it is moderate are conditions favorable for the occurrence of positive serodiagnostic reactions. In vivax malaria, conditions are not optimal for serodiagnostic detection of the disease; this is shown by the fact that, although universal reactions become intensified after febrile attacks, serodiagnostic reactions, as indicated in series 7 (fig. 2), may not become positive. In tuberculosis, serodiagnostic tests are not applicable; the reactions commonly remain negative even though universal reactions increase in intensity.

FALSE POSITIVE REACTIONS

The question arises why certain persons have false positive reactions in miscellaneous situations and others do not. The relationship between universal reactions and false positive serodiagnostic reactions is illustrated in figure 3. Persons who normally have universal reactions, illustrated in graph series 1 to 4, are not likely to become false positive reactors, because their lipid antigen-antibody reactivity is removed from the serodiagnostic zone. Those who normally have universal reactions, illustrated in graph series 5 to 8, are likely to become false positive reactors, because their reactivity is close to the serodiag-

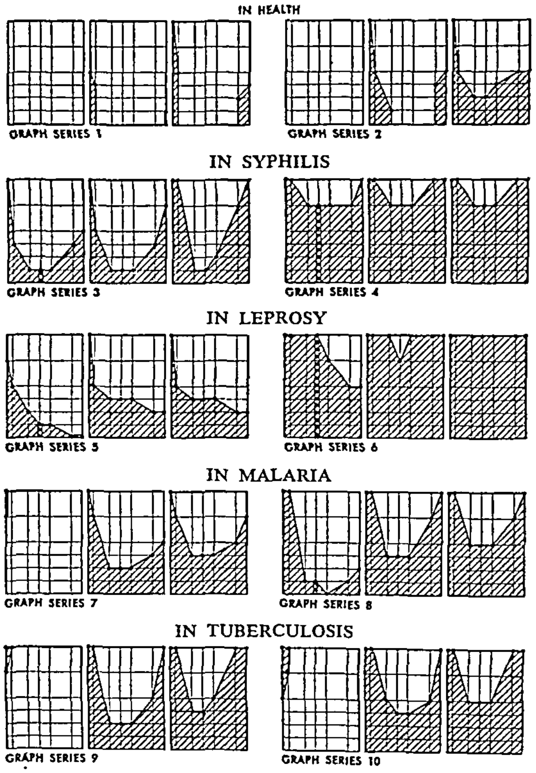


Fig. 2.—Universal reactions in health and disease, showing the relationship between universal and serodiagnostic reactions. (Each series of graphs represents the reaction of a different person.)

---

[2] Kahn, R. L., and Gutierrez-Villegas, L.: Universal Serologic Reaction in Pinta, Am. J. Syph. 36: 468-475 (Sept.) 1952. (This article considers also yaws and bejel.)

[3] Moore, J. E., and Mohr, C. F.: Biologically False Positive Serologic Tests for Syphilis: Type, Incidence, and Cause, J. A. M. A. 150: 467-473 (Oct. 4) 1952.

nostic zone; any condition that tends to increase this reactivity would lead to positive serodiagnostic reactions, such as those shown in graph series 9 and 10.

BASIS OF POSITIVE SERODIAGNOSTIC REACTIONS

The possible basis of positive serodiagnostic reactions has been suggested by the results of studies of the universal reaction. It has been observed that the latter reaction, present in health, is intensified in disease. The reaction is intensified also following irradiation [4] and following injection in animals of various substances as dissimilar as horse serum and paraffin oil.[5] This increase in intensity of the universal reaction indicates that the biological mechanism of *lipid antigen-antibody reactivity* has a common basis in tissue breakdown, ranging from that in normal catabolism to that in disease. The lipids thus liberated, it is believed, become foreign to the body and autoantigenic, as a result of chemical changes. Autoantibodies are then formed to these lipids that are detected in vitro by the universal reaction.

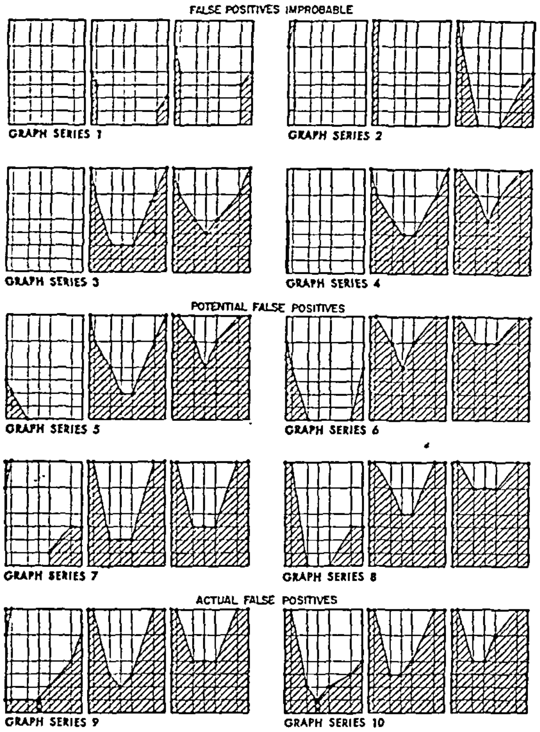


Fig. 3.—Universal reactions of nonsyphilitic persons as indicators of the varying tendencies of such persons to have false positive reactions. (Each series of graphs represents the reactions of a different person.)

In view of the relationship between serodiagnostic and universal reactions, the same concept should apply to both reactions. Accordingly, it is assumed that a positive serodiagnostic reaction, whether it occurs in syphilis, in nonsyphilitic diseases, following irradiation, or following injection of various substances, is the result of tissue breakdown or of increased tissue catabolism over the normal level and that the antibodies produced to the lipids liberated are of such a nature and concentration as *to be detectable by means of serodiagnostic tests.* This concept lends support to the clinical significance of positive serodiagnostic reactions in the absence of syphilis, suggested by me [6] and recently emphasized by Moore and Mohr.[3] False positive serodiagnostic reactions may be encountered (1) concurrently with pathological processes or increased tissue catabolism, (2) for weeks or several months after recovery, (3) prior to the appearance of clinical manifestations in diseases of prolonged onset,[7] and (4) in normal persons (rarely).

INCIDENCE OF FALSE POSITIVE REACTIONS

Because the impression may be gained from this article that false positive reactions in serodiagnostic tests are common occurrences, it should be emphasized that they are relatively rare. *This fact is indicated by the Kahn test* results reported from our laboratory in official serologic evaluation studies, based on the examination of given numbers of blood specimens from syphilitic and nonsyphilitic donors by various laboratories that were not advised of the clinical histories of the donors. Since 1937, the U. S. Public Health Service, aided by an advisory serologic council, has conducted 17 such evaluation studies, and in these not a single false positive or false doubtful Kahn reaction has been reported in the examination of 2,833 blood specimens from nonsyphilitic donors, as is indicated in table 2.[8] This specificity record of the Kahn test in official evaluation studies is reported not to suggest that this test is incapable of giving false positive reactions but to indicate that a serodiagnostic test, when performed correctly, may give results of high specificity.

TABLE 2.—*Specificity Record of the Standard Kahn Test from 1937 to 1952**

Year of Evaluation Study	No. of Serum Samples Tested (Total= 2,833)	Positive Reactions		Doubtful Reactions		Specificity Rating, %	Clinical Status of Donors
		No.	%	No.	%		
1937	100	0	0	0	0	100	Normal
1938	96	0	0	0	0	100	Normal
1938	444	0	0	0	0	100	Tuberculosis
1939	114	0	0	0	0	100	Normal
1940	111	0	0	0	0	100	Normal
1941	130	0	0	0	0	100	Normal
1941	453	0	0	0	0	100	Malignant disease, fever, etc.
1942	129	0	0	0	0	100	Normal
1943	131	0	0	0	0	100	Normal
1944	161	0	0	0	0	100	Normal
1945	153	0	0	0	0	100	Normal
1946	135	0	0	0	0	100	Normal
1947	136	0	0	0	0	100	Normal
1948	141	0	0	0	0	100	Normal
1949	149	0	0	0	0	100	Normal
1950	150	0	0	0	0	100	Normal
1952	100	0	0	0	0	100	Normal

* Based on my results in official serologic evaluation studies on serum samples from nonsyphilitic persons, excluding patients with leprosy or malaria.

---

[4] Kahn, R. L., and Petrenco, H.: Effect of Irradiation on the Universal Serologic Reaction in Rabbits, Fed. Proc. **11**(pt. 1): 472 (March) 1952. Kahn, R. L.; Hodges, F. J.; Lampe, I., and Doyle, O. W.: Effect of Irradiation on the Universal Reaction in Cancer, Cancer Res. **12**: 170-175 (March) 1952.

[5] Kahn, R. L., and Petrenco, H.: Universal Serologic Reactions of Rabbits Injected with Horse Serum, Proceedings of the 51st Meeting of the Society of American Bacteriologists, May, 1951, p. 106. Kahn, R. L.; Wheeler, A. H., and Brandon, E. M.: Universal Serologic Reactions of Rabbits Injected with Freund's Adjuvant, Fed. Proc. **10**(pt. 1): 412 (March) 1951. Kahn, R. L., and Petrenco, H.: Universal Serologic Reactions of Rabbits Injected with Tissue Lipids, ibid. **10**(pt. 1):412 (March) 1951.

[6] Kahn,[1a] p. 44.

[7] Kahn,[1a] p. 40. Haserick, J. R., and Long, R.: Systemic Lupus Erythematosus Preceded by False-Positive Serologic Tests for Syphilis: Presentation of 5 Cases, Ann. Int. Med. **37**: 559-565 (Sept.) 1952.

[8] Reports of serologic evaluations are available at the venereal disease division, United States Public Health Service, Washington, D. C.

SUMMARY

An attempt is made to clarify the behavior of serodiagnostic reactions employed in the diagnosis of syphilis, based largely on results obtained with the universal serologic reaction. These results have revealed a broad field of lipid antigen-antibody reactivities in health and disease and have thrown new light on the nature of serodiagnostic reactions, both in the presence and in the absence of syphilis.

SPECIAL ARTICLE

ON THE MECHANISM THROUGH WHICH HYDROCORTISONE AFFECTS THE RESISTANCE OF TISSUES TO INJURY

AN EXPERIMENTAL STUDY WITH THE GRANULOMA POUCH TECHNIQUE

Hans Selye, M.D., Ph.D., Montreal, Canada

THE JOURNAL *normally does not contain articles based on experiments performed on the lower animals. It is a clinical and an organizational journal; however, the following article by Dr. Hans Selye reports observations of clinical interest in a field that today is widely discussed. For this reason Dr. Selye's article is being published as a special article.*—ED.

In view of the manifold therapeutic effects of glucocorticoids, the mechanism through which they influence disease is of considerable interest to the physician. It is commonplace by now to say that they do not attack pathogens directly. Clinical observations led to the assumption that they might provide some "protective shield" around the tissues of the body, a barrier quite impermeable to many pathogens. This hypothesis would be consonant with the great nonspecificity of their protective effects, but it is hardly in keeping with the well-known fact that cortisone actually diminishes resistance to some aggressors (e. g., certain pathogenic micro-organisms). The purpose of this communication is to report on recent experiments that suggest an alternative interpretation that is compatible with the fact that these hormones can both protect and sensitize to various nonspecifically injurious agents (noxae).

As soon as the principal outlines of the general adaptation syndrome had been recognized, it became evident that close relationships exist between this "systemic stress response" and the topical phenomena of inflammation.[1] This view has since received ample confirmation.[2]

Firstly, both the general adaptation syndrome and inflammation represent nonspecific responses to a variety of apparently quite unrelated agents. However, while the former is elicited by systemic stressors, that is, by agents that affect the body as a whole, the latter is called forth by topical stressors, which affect only a limited area. Secondly, both the general adaptation syndrome and inflammation are triphasic types of reactions. The alarm reaction, the stage of resistance, and the stage of exhaustion in the general adaptation syndrome are respectively duplicated, in a sense, by the distinctly different reaction forms characteristic of acute inflammation, chronic inflammation, and the eventual breakdown of tissues (perforation of abscesses and necrosis). Thirdly, both in the general adaptation syndrome and in inflammation, certain pituitary and adrenal hormones (corticotropin [ACTH], somatotropin [STH], and corticoids) exert an important regulatory role. Fourthly, both the general adaptation syndrome and inflammation appear to be essentially useful defense reactions.

Whether inflammation is "useful" or "harmful" has been vigorously debated since the beginning of medical history (for an excellent review of this problem, see Bier [3]), and is still a controversial matter. My experimental studies suggested that this depends largely on the phlogistic agent under investigation. The suppression of inflammation by antiphlogistic hormones (e. g., corticotropin, cortisone, and hydrocortisone) or its augmentation by prophlogistic substances (e. g., somatotropin and desoxycorticosterone) can be useful or harmful, depending on the nature of the evocative irritant. Certain potential pathogens do not tend to cause local injury in themselves, nor do they induce systemic damage by spreading through the organism (e. g., egg white or dextran injected into the joint tissue of a rat). These agents cause lesions mainly because they elicit a marked phlogistic response. Hence, here suppression of inflammation by glucocorticoids is virtually synonymous with the suppression of detectable disease phenomena and is manifestly "useful." Conversely, in the case of agents that normally cause extensive local necrosis (e. g., croton oil or strong alkali), or tend to kill by dissemination and metastases (e. g., most pathogenic micro-organisms), the reverse is true. Here suppression of inflammation by glucocorticoids is usually harmful. Thus one may say that, although fundamentally inflammation is a defense reaction, it may itself produce morbid lesions if its development is not proportionate to the requirements induced by the evocative pathogen.

The corresponding protective value of the general adaptation syndrome with its counterpart, the potentially pathogenic effect of its derangements, has been discussed from this point of view in a series of earlier monographs [4] and hence requires no further comment here.

In the present communication I wish to report on a systematic experimental analysis of the above-mentioned defensive effect of inflammation with its corollary, the pathogenicity of derangements in the inflammatory potential of the body. For these investigations I employed the "granuloma pouch" technique, because it permits the

---

From the Institut de Médecine et de Chirurgie expérimentales, Université de Montréal.

This study has been subsidized by a grant from the National Research Council of Canada.

[1] Selye, H.: Syndrome Produced by Diverse Nocuous Agents, Nature **138**: 32, 1936.

[2] Selye, H.: The Story of the Adaptation Syndrome, Montreal, Acta, Inc., 1952.

[3] Bier, A.: Die Entzündung, Arch. f. Klin. Chir. **176**: 407, 1933.

[4] (*a*) Selye, H.: The Physiology and Pathology of Exposure to Stress: A Treatise Based on the Concepts of the General Adaptation Syndrome and the Diseases of Adaptation, Montreal, Acta, Inc., 1950; (*b*) First Annual Report on Stress, Montreal, Acta, Inc., 1951. (*c*) Selye, H., and Horava, A.: Second Annual Report on Stress, Montreal, Acta, Inc., 1952. (*d*) Selye.[2]

performance of quantitative function tests that help to assess the delimiting power of granulomatous tissue.[5]

As a moderator of the inflammatory reaction against a given irritant, I employed hydrocortisone, because, as far as is known at present, this is the most important natural antiphlogistic corticoid. Hence, it was thought that the data obtained with this hormone might help to clarify not only the functional value of inflamed tissue but also the mechanism through which endogenous corticoids could affect disease.

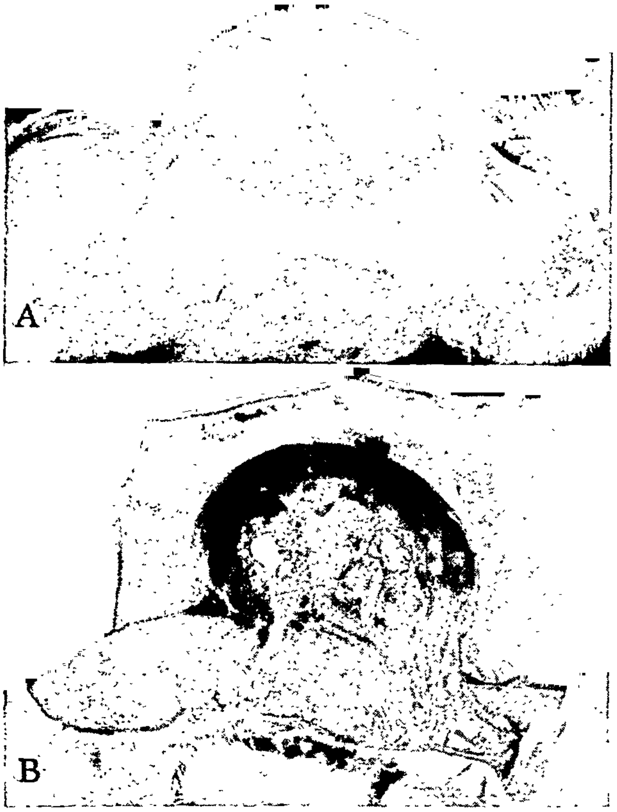


Fig. 1.—Dissection of the granuloma pouch. *A*, appearance of a fully formed granuloma pouch, as viewed from the outside. *B*, after the surrounding skin area was demarcated by a semicircular incision, the covering skin flap was dissected and turned back, exposing the cutaneous muscle layer whose fibers originate from the axillary region and then fan out over the entire granuloma pouch area.

EXPERIMENTAL TECHNIQUES

The granuloma pouch technique is a procedure designed to permit the objective, quantitative analysis of factors regulating inflammation and wound-healing. It is based on the observation that an almost perfectly symmetrical, ellipsoid air space of any desired size can be created by injecting a given amount of air into the loose subcutaneous connective tissue of the rat. The cavity thus formed acts as a "mold" for the subsequent formation of a granulomatous membrane, into which its entire inner surface can be transformed by the injection of an irritant (e.g., croton oil) into the air space itself. Through the selection of appropriate irritants it is even possible—within certain limits—to determine at will both the thickness and the structure of the resulting granulomatous membrane as well as the quantity and cellular constitution of the fluid exudate that gradually replaces the air.

A brief outline of this technique, with a few examples of its principal applications in the study of wound-healing and inflammation, have been given elsewhere.[6] Let me point out here, however, that in devising a test for the quantitative assessment of the protection given by inflamed tissue, my main concern had to be the enforcement of a consistent regular anatomic disposition, relative to each other, of (1) the pathogen (croton oil), (2) the barrier (granuloma membrane), and (3) some target or indicator of tissue penetration (skin). Numerous dissection preparations of granuloma pouches showed that the invariable topographic relationships of this structure fulfill the above requirement (fig. 1 and 2). This is particularly important for studies aiming at a differentiation between inflammation and necrosis. It had long been known that irritants can elicit both these reaction types and that cortisone, though usually a "protector of tissues against injury," may occasionally facilitate the production of necrosis (e.g., in the lung, liver or kidneys).[4a] In most of the spontaneous or experimental diseases, however, the special relationships between pathogen, barrier, and target are so variable and irregular that the resulting lesions do not lend themselves to a precise analysis of their pathogenesis.

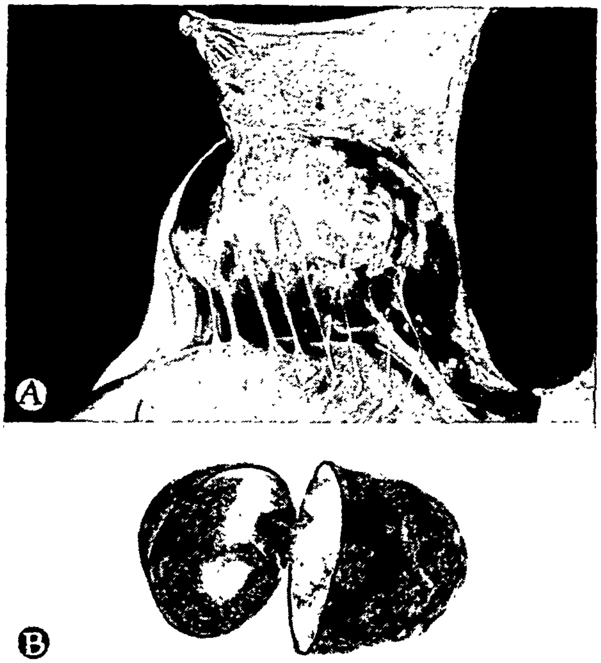


Fig. 2.—Further steps in dissection of the granuloma pouch. *A*, the skin muscle has been dissected and lifted up to show its relation to the actual granuloma membrane, which is covered by it just underneath the skin. Some of these muscle bands remained attached to the fascial layers of the back, so that the pouch actually developed within two laminas of the cutaneous musculature. The neurovascular pedicles of the pouch are clearly visible, as cords emerging from each of the intercostal spaces and ascending vertically towards the granuloma in which they distribute themselves. *B*, after enucleation and fixation, the granuloma pouch was opened by an almost complete frontal section. The even thickness and the great regularity of the external and internal surfaces can be noted.

---

[5] 5. Selye, H.: Mechanisms Through Which the Adrenal Cortex Produces Qualitatively Different Effects, in Adrenal Cortex: Transactions of Fourth Conference, November 13-15, New York, Josiah Macy Jr. Foundation, 1952, to be published.

[6] 6. Selye, H.: Use of "Granuloma Pouch" Technique in Study of Antiphlogistic Corticoids, Proc. Soc. Exper. Biol. & Med. 82:328, 1953. Selye and Horava.[4c]

It is also noteworthy, in connection with the observations reported here, that both the membrane and the exudate of the granuloma pouch are highly sensitive to the action of so-called adaptive hormones of the pituitary and adrenal. Thus, minute doses of hydrocortisone, especially if injected directly into the wall of the pouch, suffice to inhibit the formation of both a granulomatous membrane and an exudate, while somatotropin exerts opposite effects.[5]

The granuloma pouch technique also proved useful in elucidating the phenomenon of "induced topical resistance" to acute tissue injury. In essence, it has been found that if, as a result of contact with a weak irritant (e. g., dilute croton oil), an inflammatory response develops along the inner surface of such a connective tissue sac, the wall becomes highly resistant, even to otherwise necrotizing doses of intensely injurious substances (e. g., concentrated croton oil). At the same time the resistant granulomatous membrane effectively protects adjacent tissues (for instance the skin that covers it) from the chemical irritant. Interestingly, the inhibition in the morphological development of the granuloma by topical hydrocortisone treatment is paralleled by a diminution in this "induced topical resistance." [7]

Effect of Pretreatment with Irritants and/or Hydrocortisone on Resistance to Concentrated Croton Oil

Groups	Pretreatment 1st Day	 5th Day	 9th Day	Thickness of Granuloma, μ *	Treatment 10th Day	Necrosis of Skin Incidence, %	 Extent, % of Surface
1	Air: 25 ml. Corn oil: 0.5 ml.	Corn oil: 0.5 ml.	....	250	Croton oil (100%): 0.5 ml.	100	30.9 ±7
2	Air: 25 ml. Croton oil (0.5%): 0.5 ml.	Croton oil (3%): 0.5 ml.	....	900	Croton oil (100%): 0.5 ml.	0	0
3	Air: 25 ml. Corn oil: 0.5 ml. Hydrocortisone: 5 mg. in wall	Corn oil: 0.5 ml.	....	80	Croton oil (100%): 0.5 ml.	100	74.8 ±4
4	Air: 25 ml. Croton oil (0.5%): 0.5 ml. Hydrocortisone: 5 mg. in wall	Croton oil (3%): 0.5 ml.	....	300	Croton oil (100%): 0.5 ml.	100	13.3 ±4
5	Air: 25 ml. Corn oil: 0.5 ml. Hydrocortisone: 5 mg. in cavity	Corn oil: 0.5 ml. Hydrocortisone: 5 mg. in cavity	....	0	Croton oil (100%): 0.5 ml. Hydrocortisone: 5 mg. in cavity	100	87.6 ±2.1
6	....	....	Air: 25 ml. Hydrocortisone: 12.5 mg. in cavity	0	Croton oil (100%): 0.5 ml.	100	96.1 ±1.3
7	....	....	Air: 25 ml.	0	Croton oil (100%): 0.5 ml.	100	96.7 ±0.9

* Figures in this column represent the average of five measurements made on each of the two rats that were killed on the 10th day, just prior to the injection of concentrated croton oil. Measurements were made only on the peripheral wall of the granuloma pouch, i.e., the portion adherent to the skin. The total width, as expressed here, corresponds to the total inflamed area. In many instances, this exceeds the limit of the dissectable granuloma membrane, since portions of the skin outside this structure may also be infiltrated by inflammatory cells. The salient histological features of these tissues are described in the legends of figures 4 and 5.

In the present study, I used this technique primarily to clarify concepts concerning the mechanism through which a topical inflammatory response can protect the adjacent tissues as well as the body as a whole. For this purpose the test was performed as follows: First, the hair was removed over the entire dorsal region with fine electric clippers. Then 25 ml. of air was injected into the loose connective tissue, between the shoulder blades, through a no. 27 hypodermic needle. This was immediately followed by the injection of 0.5 ml. of an 0.5% croton oil solution (in corn oil) into the resulting air space.

In order to do this accurately, yet with the least amount of injury to the skin, the air was first injected with a large syringe. This was then detached from the needle, which was left in situ for the subsequent injection of the croton oil, through an accurately calibrated small Luer-Lok syringe. The accumulation of the hemorrhagic inflammatory exudate (usually produced by croton oil) could readily be followed from day to day by transillumination of the transparent skin pouch with a strong flashlight. Significant amounts of this fluid began to be detectable in the cavity of the pouch around the fourth to fifth day of the experiment. The shape and volume of the connective tissue cavity exposed to the croton oil was kept virtually identical by the air "mold"; hence, the response proved to be essentially of the same intensity in all animals.

On the fifth day, a second injection, this time of 0.5 ml. of a 3% croton oil solution (in corn oil), was administered into the cavity of the by now well-formed granuloma pouch. Since the first injection induces the above-mentioned phenomenon of topical resistance, there is no danger of producing skin necrosis over the pouch by the subsequently given stronger irritant.

In one type of control experiment, the same procedure was followed but, instead of the croton oil solutions, pure corn oil (0.5 ml.) was injected on the first and fifth day. Other control animals received only 25 ml. of air, to produce a connective tissue cavity with no oily material.

Hydrocortisone was administered in the form of a microcrystal suspension containing 25 mg. per milliliter.* In some experiments this was injected directly into the cavity of the pouch and in others into its wall. For the latter purpose, the total dose was given in the form of two separate but simultaneous injections of 0.1 ml. each, just below the skin surface near the caudal pole of the air sac, into the connective tissue that was later to transform itself into the granulomatous membrane. Seven experimental groups, each consisting of 10 female Wistar albino rats with an average body weight of 130 gm. (range 115 to 147 gm.), were treated as outlined in the table.

It will be noted that the pretreatment procedure varied; however, on the 10th day, in all groups concentrated croton oil (0.5 ml.) was injected into the air space, so as to determine the resistance of the surrounding skin to the necrotizing action of this strong irritant.

---

[7] Selye, H.: Induction of Topical Resistance to Acute Tissue Injury (An Experimental Study with Granuloma Pouch Technique), Surg. Clin. North America, to be published.

* Supplied by Merck and Company, Montreal, Canada.

In groups 1 to 5, the cavity was formed by the subcutaneous injection of air (25 ml.), on the first day, and in groups 6 and 7 on the ninth day. In groups 1 and 3, corn oil (0.5 ml.) was injected into the cavity on the first and fifth day, while in groups 2 and 4, increasing concentrations of dilute croton oil were administered on the first day (0.5%) and fifth day (3%) in the same volume. The animals of groups 1 and 2 received no additional treatment, while those of groups 3 and 4 were also given 5 mg. of hydrocortisone into the granuloma wall on the first day of the experiment. This made it possible to assess the effect of hydrocortisone on the pretreatment value of a very mild (corn oil) and an extremely strong phlogistic agent (croton oil), by comparing group 1 with group 3 and group 2 with group 4 respectively.

It had been noted earlier that a given dose of hydrocortisone inhibits inflammation much more effectively if it is incorporated into the granuloma wall than if it is introduced into the cavity of the pouch.[5] In the present study, however, my primary interest was to determine the effect of this hormone on the necrotizing actions of a strong irritant. Hence, it was deemed necessary also to include animals in which hydrocortisone is injected directly into the pouch cavity. This was done in group 5, but, because absorption by this route is very rapid, three injections of 5 mg. each were given on the 1st, 5th, and 10th days.

In group 6, a still larger dose (12.5 mg.) of hydrocortisone was introduced directly into the cavity of a freshly prepared air sac on the ninth day, i. e., just 24 hours before exposure to concentrated croton oil. In group 7, an air space was also prepared on the ninth day, but no hormone was introduced into its cavity. By comparing groups 6 and 7 I wanted to assess the possible effect on necrosis of heavy, but brief, pretreatment with hydrocortisone alone.

On the 10th day, two rats in each group were killed in order to obtain a first histological specimen of the tissues lining the air space just before the introduction of the necrotizing concentrated croton oil solution. The specimens were always taken from the lateral border of the pouch (along the line of transition between the normal adherent skin and that detached by the air space). Susa solution was used as a fixative, and paraffin sections were stained with hematoxylin and eosin.

Forty-eight hours after the injection of concentrated croton oil, that is, on the 12th day of the experiment, all animals were killed and the incidence of skin necrosis was registered irrespective of the extent of the necrotic skin areas. In the table this is expressed as the percentage of animals with necrosis in terms of the total number within each group. It will be seen from the table that these readings gave comparatively little information, since all the animals in all the groups except group 2 had some degree of cutaneous necrosis, making the incidence 100%.

Much more could be learned from the determination of the extent of skin necrosis. Owing to the extremely regular and reproducible anatomic relationships between the granuloma pouch and the skin, the peripheral part of the former is always directly attached to the latter everywhere. In other words, every point of the surrounding cutaneous surface is separated from the irritant by an even granulomatous barricade, which is intimately applied to it. Hence, in all animals in which only part of the skin underwent necrosis, the affected area could be accurately measured and objectively expressed as a percentage of the total skin area that covers the pouch. It should be mentioned that the necrotic skin regions assume a purplish-gray color and are sharply separated from healthy skin by a distinct narrow red line of reactive hyperemia.

To measure these necrotic areas exactly, the entire skin of the back was removed, dissected, and spread on a wooden board. The elliptic outline of the skin adherent to the pouch is somewhat elevated, because of the underlying granulomatous membrane. To bring it out even more clearly this raised border line was traced with a grease pencil. With a planimeter, first the total adherent skin area was measured and then the surface of the necrotic area (or areas) was determined, by following the red hyperemic line of demarcation. Thus, the percentage of the skin surface that underwent necrosis (with its standard error) could be objectively established in all groups (fig. 3). Finally, a second histological specimen of the skin and the underlying granulomatous membrane was taken, again from the lateral aspects of each pouch, for examination of the tissues after exposure to concentrated croton oil.

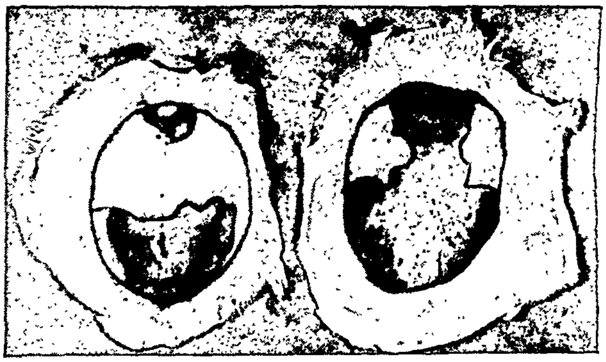


Fig. 3.—Examples of skin specimens prepared for planimetric measurements. The necrotic (dark) zones are clearly distinguishable from the living (light) portions. Measurements on these two samples showed that in the animal on the left 40% and in that on the right 73% of the total adherent skin area had become necrotic.

EXPERIMENTAL RESULTS

The results of all these experiments are summarized in the table, while the morphological basis of the observed changes is illustrated in figures 4 and 5. These data reveal the following facts:

1. Even pretreatment with such a comparatively innocuous substance as corn oil induces some topical resistance to concentrated croton oil. This is revealed by a comparison of the extent of necrosis in groups 1 and 7 (P less than 0.01).

2. Pretreatment with gradually increasing doses of croton oil produces the greatest topical resistance so far observed. This is presumably due to the fact that croton oil elicits very intense granuloma formation. This is evidenced by a comparison of group 2 with any of the other groups. It will be noted that only in group 2 were all animals free of any trace of necrosis.

3. Hydrocortisone, administered into the wall of the pouch, greatly diminishes the topical acquired resistance

normally induced by corn oil pretreatment. This is shown by a comparison of the extent of necrosis in groups 1 and 3 (P less than 0.01). Presumably the hormone acts by inhibiting the formation of a limiting connective tissue barrier around the oil deposit.

4. Hydrocortisone, administered into the wall of the pouch, also reduces the normally considerable resistance induced by pretreatment with gradually increasing doses of croton oil. This is evidenced by a comparison of the extent of necrosis in groups 2 and 4 (P less than 0.01). The suppression of topical resistance that is thus induced is presumably due to the fact that the hormone greatly diminishes granuloma formation even around this strong irritant. It remains to be seen whether the thin granulomatous membrane that is elicited by irritants despite hydrocortisone treatment differs qualitatively (as regards its functional value) from ordinary granulomatous tissue of equal thickness.

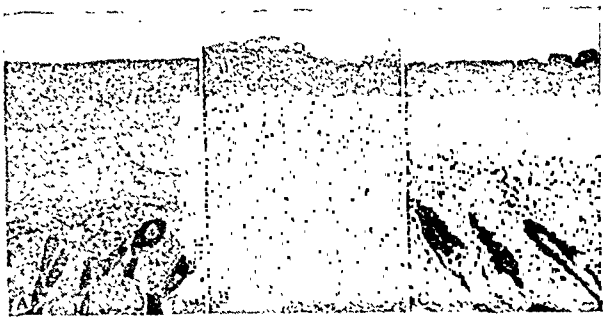


Fig. 4.—Histological effect of pretreatment with irritants and/or hydrocortisone of the pouch wall just prior to the final exposure to concentrated croton oil.

5. Repeated intense overdosage with hydrocortisone administered into the pouch cavity also inhibits the acquired topical resistance that is normally induced by croton oil. Indeed, under the conditions of these experiments, the inhibition so induced was even more pronounced than that caused by a smaller single dose of the hormone, given into the pouch wall. This is shown by a comparison of the extent of necrosis in groups 4 and 5 (P less than 0.01).

6. Intense but brief pretreatment with hydrocortisone, administered into the pouch cavity, fails to protect against the necrotizing action of concentrated croton oil, as shown by a comparison of groups 6 and 7 (P more than 0.5). Since in both of these groups, however, more than 96% of the skin area had become necrotic, I wondered whether the lack of difference between them might not be due merely to the severity of the resulting damage, which made the tissues insensitive to hormonal stimuli.

For this reason, an additional small experiment was performed under exactly the same conditions, but using 0.5 ml. of a 10% croton oil solution on the 10th day. In one group of 10, otherwise untreated, control rats, this caused necrosis, with an incidence of 90% and an extent of 39.7% (± 8.7). In a second group of 10 rats that received 12.5 mg. of hydrocortisone on the day preceding the introduction of the 10% croton oil, the incidence of necrosis was 100% and its average extent 63% (± 7). Because of the great standard error in both groups, this difference was not quite significant (P = 0.07). Yet, in any event, it is obvious that the hydrocortisone did not protect; indeed, if it had any effect, it sensitized the skin to the necrotizing action of our irritant. Since in this short-term experiment there was no time for the croton oil to produce a protective granuloma, it was to be expected that here the sensitization by hydrocortisone (which depends on the inhibition of granuloma formation) could not be pronounced.

The histological effect of pretreatment with irritants and/or hydrocortisone of the pouch wall just prior to the final exposure to concentrated croton oil is shown in figures 4 and 5. All of the specimens were taken from the peripheral walls of the pouches, where the granuloma is directly in contact with the skin. The tissues are so oriented that the air space with the lining granuloma membrane is near the upper and the skin near the lower margin of the photographs. In group 1 (fig. 4*A*) after pretreatment with corn oil alone, the granuloma consisted of small roundish epithelioid-looking cells with narrow capillaries. There is no necrosis or leukocytic infiltration. The connective tissue fibers and cells are arranged in concentric layers around the cavity. Below the granulomatous membrane, the cutaneous muscle is intact. Still further down, the normal adipose tissue and hair follicles of the skin are noted (average width 250 μ). In group 2 (fig. 4*B*) after pretreatment with gradually increasing doses of dilute croton oil, an extremely thick granulomatous membrane developed, consisting of large elongated cells and wide capillaries. Along the inner surface there is much necrotic material, intermixed with pus. The muscle is also intensely infiltrated by the granuloma; only a few muscle fibers are still distinguishable along the lower margin of the field. The fibroblasts and capillaries of the inner granuloma layers tend to be radially arranged ("palisade formation"), though some of them are rather irregularly interlacing. This picture is quite characteristic of granulomas that have acquired considerable resistance to irritation. (The average width of 900 μ exceeded the photographed area.) In group 3 (fig. 4*C*) the simultaneous pretreatment with corn oil and hydrocortisone produced a histological picture that is qualitatively similar to that seen in figure 4*A* (i.e., without treatment with hydrocortisone), but the lining membrane is much thinner (average width 80 μ).

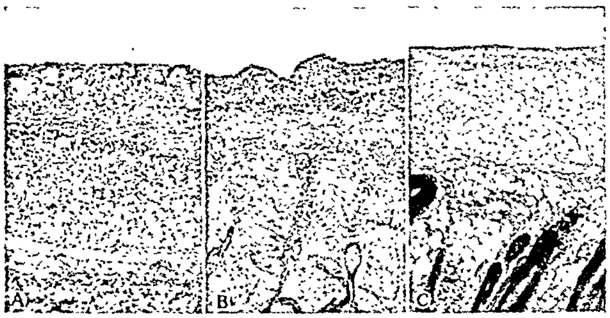


Fig. 5.—Histological effect of pretreatment with irritants and/or hydrocortisone of the pouch wall just prior to the final exposure to concentrated croton oil.

Figure 5*A* shows the result of simultaneous pretreatment with croton oil and hydrocortisone in group 4. The granuloma is not unlike that seen in figure 4*B* but is considerably reduced in thickness. It consists of medium-sized but rather elongated spindle-shaped cells, which are more or less irregularly interlacing although many of them are radially arranged, as are the capillaries between them. There is no necrosis and very little infiltration with polymorphonuclear leukocytes along with free border, but there is a fairly thick layer of intensely dilated capillaries. In the upper part of this field these assume a capillary-hemangioma-like appearance. The cutaneous muscle is partially infiltrated by fibroblasts (average width 300 μ). Figure *5B* shows the result of simultaneous pretreatment in group 5 with corn oil and repeated administration of hydrocortisone (in this case injected into the cavity of the air sac). There is no inflammatory reaction, but there is a beginning surface organization in the sense that the fibroblasts normally lining the air space are more closely packed and more regular than in the following two groups (represented by fig. *5B*), in which the connective tissue was not exposed to any irritating pretreatment. A single photograph (fig. *5C*) is given to illustrate the changes in both groups 6 and 7, since their tissues were histologically indistinguishable. In all these rats, whether they were pretreated with air and cortisone (group 6) or with air alone (group 7), there was no inflammatory reaction and no trace of surface organization. The inner lining consists merely of irregular, partly necrotic or degenerating, fibroblasts and fibers. Some of these are detached and in the process of being cast into the cavity. The picture resembles that of a freshly produced connective tissue wound in which no reaction has set in as yet. Since in these two groups there was no inflammation, it was not possible to measure the thickness of any actual granuloma membrane.

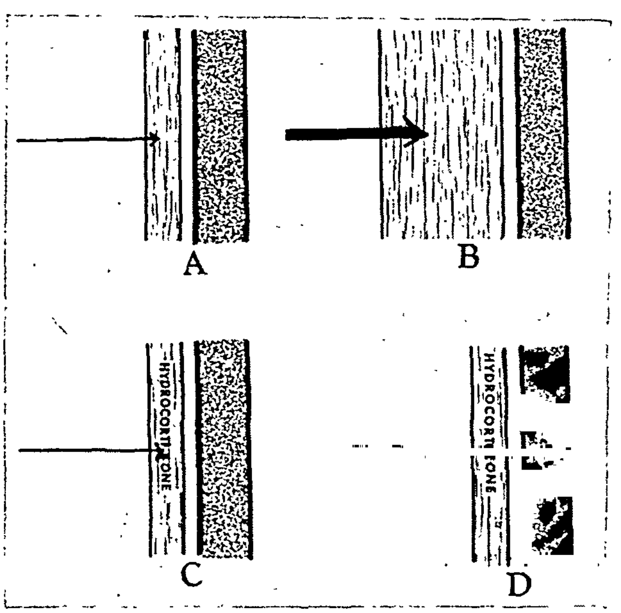


Fig. 6.—Schematic drawing illustrating probable mechanism of hydrocortisone action in tissues endangered by irritants. *A*, mild preliminary irritation (thin arrow) acting upon connective tissue (streaky area) but not penetrating to adjacent skin (dotted area). *B*, great increase in connective tissue due to granuloma formation by previous exposure to mild irritant. Subsequently applied strong irritant (heavy arrow) is now well tolerated by the adjacent skin, due to the protective effect of the granuloma. *C* and *D*, hydrocortisone "protects" connective tissue from being transformed into an effective thick granuloma and, hence, subsequent exposure to the strong irritant results in necrosis (black areas) of the adjacent tissue.

COMMENT

From these experiments I am inclined to deduce first of all that, although necrosis frequently accompanies severe inflammatory reactions, the two are essentially distinct phenomena that can be experimentally separated from each other. Indeed, in a sense, there is a significant negative correlation between them. The more an irritant stimulates inflammation the better are the adjacent tissues protected against necrosis and, conversely, selective inhibition of inflammation (e.g., by an antiphlogistic corticoid, such as hydrocortisone) facilitates the production of necrosis. Presumably inflammation is a natural defense mechanism against potentially damaging (e.g., necrotizing) agents. In the light of these findings, the commonly used term "necrotizing inflammation" would appear to be misleading. It is not the inflammation that is "necrotizing" but those histotoxic agents that are unable to induce a degree of inflammation sufficient to protect the tissues against their own necrotizing effects. The observation that an antiphlogistic corticoid exerts diametrically opposite effects on the phlogistic and necrotizing actions of the same pathogen (croton oil) is, in my opinion, of import in the interpretation of disease phenomena in general.

It will be recalled that the beneficial action of cortisone and cognate hormones was at first thought to be more or less specific for rheumatic and allied "collagen diseases." Subsequently, when the therapeutic spectrum of these substances was found to be wider than expected, the hypothesis was advanced that these corticoids act by creating some "shield-like buffer against the various irritants," [8] which prevents the pathogen from injuring the body tissues. The fact that, through some effect on the hyaluronidase-hyaluronic-acid system, glucocorticoids inhibit spreading through connective tissue appeared to give support to this contention.[9]

Conversely, earlier work led me to suspect that the most characteristic defensive action of these hormones depends precisely on their great efficacy in destroying barriers between pathogen and host, by depressing the "inflammatory potential." Hence, I thought of them as primarily "antiphlogistic corticoids." [10]

It is in order to further elucidate this point that I undertook the experiments reported in this paper. Hence, I purposely selected a pathogen (croton oil) that has both phlogistic and necrotizing properties. The effect of hydrocortisone on the reaction to this irritant was then examined under various conditions to determine whether both actions are always concurrently blocked, as postulated by the cell-shield hypothesis. The data obtained clearly demonstrate that this is not the case. The hormone does not protect against the pathogen as such (e.g., by putting some impenetrable separation between it and the tissues or by making the cells insensitive to it); it prevents only the strictly inflammatory response. This effect would be useful, in the case of pathogens that, like most allergens, are not very injurious in themselves and whose damaging action is mainly due to their phlogistic effects. Yet, it can also be harmful if, as in the case of croton oil, the pathogen causes severe injuries on contact with the

---

8. Hench, P. S.; Slocumb, C. H.; Polley, H. F., and Kendall, E. C.: Effect of Cortisone and Pituitary Adrenocorticotropic Hormone (ACTH) on Rheumatic Diseases, J. A. M. A. **144**: 1327 (Dec. 16) 1950.

9. Opsahl, J.: Hyaluronidase and Adrenal Cortical Hormones, in Ralli, E. P., Adrenal Cortex: Transactions of Second Conference, November 16-17, New York, Josiah Macy Jr. Foundation, 1950, p. 115.

10. Selye, H.: Further Studies Concerning Participation of Adrenal Cortex in Pathogenesis of Arthritis, Brit. M. J. **2**: 1129, 1949.

tissues, injuries that could be prevented by the erection of a granulomatous barricade. The principle of this hormone action is illustrated by the diagrams (fig. 6).

One could still argue, of course, that hydrocortisone places a barrier between the pathogen and the connective tissue, thus preventing the latter from turning into a granuloma. This would leave unexplained how the pathogen can nevertheless penetrate and destroy this same connective tissue to reach an adjacent target in the skin in my experiments (fig. 6*D*).

It may be questioned whether animal experiments such as these can be considered suitable models on which to study the mechanism of corticoid actions in general. If they are, however, it would appear unjustified to persist in postulating that antiphlogistic corticoids place an impenetrable barrier—an "asbestos suit"[11]—between the potential pathogen and the sensitive, living tissues. On the contrary, they act mainly by interfering with the development of the granulomatous barriers, whose chief vital function is to effect such a separation.

SUMMARY AND CONCLUSIONS

The technique for the production of a "granuloma pouch" in the rat has been described in detail and the morphological configuration of this structure has been analyzed with the help of anatomic dissections. Function tests were performed on granuloma tissue with the aid of this technique. In particular, it was found possible to assess—by objective planimetric measurements of skin necroses—the value of inflamed subcutaneous tissue as a protective barrier against toxic chemical irritants such as croton oil. Like most substances that are highly irritating to tissues, croton oil causes a so-called necrotizing inflammation. With the granuloma pouch technique, it has been shown that the two components of this allegedly single response (necrosis and inflammation) can be separated. Suitable treatment with an antiphlogistic corticoid, such as hydrocortisone, selectively inhibits the phlogistic effect of croton oil without impeding its necrotizing actions. Indeed, in normal and hydrocortisone-treated rats, there appears to exist an inverse proportion between the development of an inflammatory barrier around an irritant and the tendency of adjacent tissues to undergo necrosis. On the basis of these experiments, the hypothesis is elaborated that inflammation and necrosis are two related, but fundamentally opposed, types of reactions to nonspecific tissue injury; the former is progressive and protective and the latter regressive and due to inadequate protection in the face of aggression. These findings are incompatible with the rather widely held view that hydrocortisone and allied compounds act by placing some protective barrier around the cells that shields them against potential pathogens. Since these hormones can inhibit one action (inflammation) while aggravating another effect (necrosis) of the same agent, they cannot be visualized as mere insulators of cells against pathogens. On the contrary, the principal action of these steroids appears to be that they inhibit the development of granulomatous barriers between irritants and vital tissues.

Case Postale 6128.

[11] Hench, P. S.: Reversibility of Certain Rheumatic and Nonrheumatic Conditions by Use of Cortisone or of Pituitary Adrenocorticotropic Hormone, Ann. Int. Med. 36:1, 1952.

CLINICAL NOTES

CURE OF SUBPHRENIC ABSCESS WITH LARGE DOSES OF OXYTETRACYCLINE (TERRAMYCIN)

Jerry Zaslow, M.D.
and
Fred Sachs, M.D., Philadelphia

"Conservative treatment of subphrenic infection should be given a trial unless the clinical manifestations and the radiological investigations indicate or strongly suggest abscess formation. . . . In many instances these measures will succeed and an abscess may thus be aborted, the fever subsiding in a few days, the pain and tenderness diminishing, and the convalescence from the original causative lesion or operation being resumed. . . . If the characteristic clinical picture of subphrenic infection continues unabated for three to six days, it is wiser to operate than to temporize indefinitely with medical measures. Operative treatment should be carried out immediately as soon as the subphrenic abscess is diagnosed or suspected."

The foregoing statements are taken from the book "Abdominal Operations" by Rodney Maingot,[1] and they reflect the opinions of teachers of surgery today. Once the diagnosis of a subphrenic abscess has been established, the importance of immediate operation to evacuate the abscess is emphasized. Ochsner and DeBakey[2] found that of 1,096 patients not operated on there were 985 (89.8%) deaths, whereas of 1,492 patients in whom operation was performed there were 637 (32.8%) deaths. Ochsner and Graves[3] demonstrated that the death rate was much higher when there was an associated thoracic complication. These figures were found in the prechemotherapeutic era. After reviewing the recent literature we have been unable to find what effect chemotherapy and antibiotics have had on these figures; however, we believe that the prophylactic use of these agents has reduced the incidence of these infections, and in those cases where infection does start in the subphrenic spaces it is often aborted before it reaches frank suppuration.

Abscesses in other portions of the body have been treated with antibiotics, on occasion with complete resolution of the process. The classical report by Crile[4] in treating appendiceal abscesses with penicillin is an example. Generally, the antibiotics have not replaced surgical drainage of such infections, but have merely helped localize these infections, simplifying the operative procedure and making the patients better operative risks. The following report is of interest because it represents

---

Associate Surgeon (Dr. Zaslow) and Resident Surgeon (Dr. Sachs), Albert Einstein Medical Center, Northern Division.

[1] Maingot, R.: Abdominal Operations, ed. 2, New York, Appleton-Century-Crofts Company, 1948.

[2] Ochsner, A., and DeBakey, M.: Subphrenic Abscess: Collective Review and Analysis of 3,608 Collected and Personal Cases, Internat. Abstr. Surg. 66:426, 1938; in Surg., Gynec. & Obst. (May) 1938.

[3] Ochsner, A., and Graves, A. M.: Subphrenic Abscess: *Analysis of* 3,372 Collected and Personal Cases, Ann. Surg. 98:961, 1933.

[4] Crile, G., Jr.: Peritonitis of Appendiceal Origin Treated with Massive Doses of Penicillin: Report of 50 Cases, Surg., Gynec. & Obst. 83:150, 1946.

a postoperative subphrenic abscess that was treated with large doses of oxytetracycline (Terramycin), resulting in complete resolution of the disease.

REPORT OF A CASE

A 42-year-old white man was admitted to the Albert Einstein Medical Center, Northern Division, Aug. 17, 1952, with a diagnosis of chronic calculous cholecystitis. A cholecystectomy and choledochostomy were performed on Aug. 18. At the completion of the procedure there was no evidence of bleeding; however, 12 hours after operation there was evidence of internal hemorrhage and the abdomen was reexplored. There was about 1,500 cc. of fresh blood in the peritoneal cavity. It was determined that the site of bleeding was from a small vein that had been incised during opening of the common bile duct. The blood was aspirated from the abdominal cavity and the bleeding vessel ligated. The immediate postoperative course was uneventful except for the development of a diffuse patchy atelectasis, which responded to medical measures. During the postoperative period the patient received 1 cc. of Combiotic (a penicillin-dihydrostreptomycin preparation) and 600,000 units of Crysticillin (a procaine penicillin G preparation) every 12 hours. The temperature, up to 103 F immediately after operation, gradually returned to normal by the fifth postoperative day (Aug. 24). On Aug. 25 antibiotic therapy was stopped. That afternoon diffuse abdominal craps and diarrhea developed; the temperature rose to 102.4 F and the pulse to 104 per minute. Antibiotics were given again, and the temperature promptly became normal. The diarrhea subsided on Aug. 26. Physical examination at this time was essentially negative. On Aug. 25 a postoperative cholangiogram and chest roentgenogram were done (fig. 1). Both were normal. In the early morning of Aug. 27 (eighth postoperative day) the patient appeared well. Quite suddenly later that morning the patient complained of severe pain in the right upper quadrant, right shoulder-top pain made worse by deep breathing, and dyspnea. The temperature rose to 102 F, the pulse to 120 per minute, and the respiratory rate to 32 per minute. Breath sounds were audible at both bases. There was marked tenderness and rigidity in the right upper quadrant of the abdomen. The remainder of the abdomen was soft and moderately distended; peristalsis was normal. The leukocyte count was 58,250 cells per cubic millimeter, of which 97% were polymorphonuclear leukocytes, many showing toxic granulation. X-ray examination done early that afternoon showed the chest to be normal, but air not seen on the film two days before was seen under the right diaphragm. The small intestine was moderately distended. The administration of Combiotic and Crysticillin was stopped. A Miller-Abbot tube was passed into the bowel, and intravenous administration of oxytetracycline, 1 gm. every 12 hours, was started. It was presumed at this time that we were dealing with an infection, perihepatic in location, not well localized, and associated with a small bowel paralytic ileus. A consultation by one of the other surgeons was requested. He felt that we should persist with the above measures, and, should an abscess develop, it should be drained. We all agreed that at this time there was no localization or abscess formation and that surgery was contraindicated.

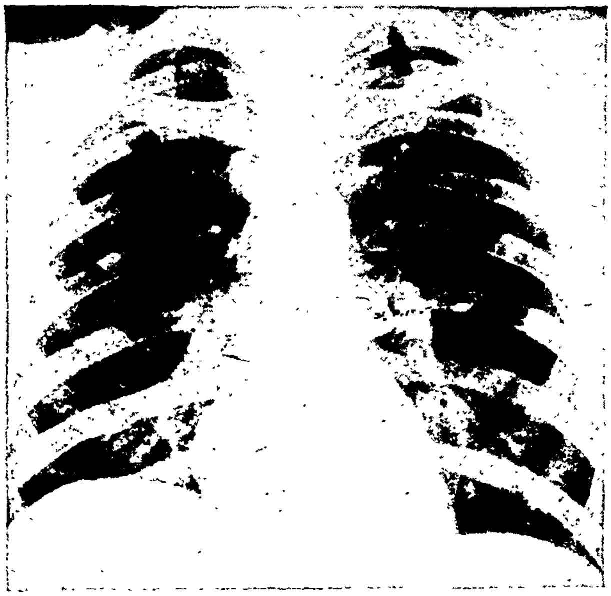


Fig. 1.—Chest roentgenogram taken on Aug. 25 showing normal lung fields, no effusion, and a sharp outline of the right side of the diaphragm.

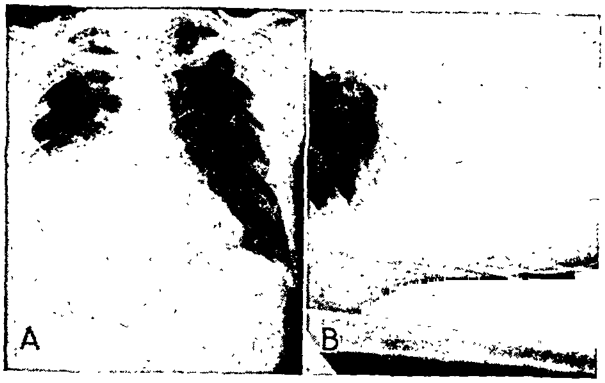


Fig. 2.—Chest roentgenogram showing subphrenic abscess. *A*, Sept. 2, showing a right pleural effusion, obliteration of the right costophrenic sulcus, air under the right side of the diaphragm, and obliteration of the normal shadow of the right side of the diaphragm. The right side of the diaphragm is elevated, and the hepatic shadow appears enlarged. *B*, Sept. 24, no air under the right side of the diaphragm. The effusion on the right appears to be decreasing.

Two days later (Aug. 29) the temperature had dropped to 100.6 F, the pulse rate to 100 per minute, and the respiratory rate to 28 per minute. There was less tenderness and pain in the right upper quadrant, but tenderness was present over the two lower right intercostal spaces. Deep breathing was still uncomfortable. There was suppression of breath sounds at the right base. An x-ray examination at this time demonstrated fluid in the right costophrenic sulcus with obliteration of the shadow of the diaphragm. The liver shadow appeared to be increased in size. A definite diagnosis of a subphrenic abscess was made. In view of the fact that the patient appeared to be improving clinically, no change in therapy was made. On Sept. 1 all local tenderness was gone, but breath sounds could not be heard below the angle of the right scapula. X-ray examinations were repeated every third day (fig. 2), and on Sept. 5 fluid was seen as high as the fifth rib posteriorly on the right side. The Miller-Abbott tube was removed seven days after its insertion when all signs of ileus disappeared.

During this entire period the temperature was gradually decreasing so that on Sept. 6 it had returned to normal. The leukocyte count fell to 26,800 cells per cubic millimeter on Aug. 30 and to 17,050 on Sept. 3. On Sept. 4 the intravenously administered oxytetracycline was discontinued and orally administered oxytetracycline was substituted in a dosage of 500 mg. every six hours. The patient left the hospital on Sept. 9, continuing with orally administered oxytetracycline. After one week the dosage of the drug was decreased to 250 mg. every six hours and finally none was given the following week. An x-ray examination 10 days after the patient's discharge showed a decrease in the amount of fluid in the right base and a decrease in the hepatic shadow and the absence of any air below the diaphragm. A final x-ray examination done on Nov. 1 showed complete resolution of the process as indicated by a normal chest film, no increase in the size of the liver shadow, and a sharp diaphragmatic shadow (fig. 3). Normal diaphragmatic movements were demonstrated by fluoroscopy.

COMMENT

On the eighth postoperative day the patient suddenly experienced dyspnea, severe right upper abdominal pain, and fever. It became apparent that a local inflammatory process was present. Whether there had been a subhepatic infected hematoma that had suddenly ruptured and produced a spreading peritonitis or whether organisms introduced at the time of cholangiography were responsible was difficult to determine. We felt that the former was probably the case and that the infection had been held in check by the penicillin and streptomycin given up to that time. It was also apparent to us that since this had happened in spite of the fact that these antibiotics were being given, they would probably be of little value in further treatment. Since one of us (J. Z.) has been having excellent results in the treatment of intra-abdominal infections with oxytetracycline in large doses, it was decided to administer this antibiotic at this time. While the response was not dramatic, it was apparent from daily observation that the patient was improving subjectively and that the temperature, leukocyte count, and local upper abdominal symptoms were decreasing. After 72 hours the tenderness was localized to the right subcostal area and the lower two right anterior intercostal spaces. Incision and drainage at this time was considered, but in view of the fact that our experience with the resolution of intra-abdominal abscesses in other locations had been so gratifying, we felt justified in continuing with conservative treatment, realizing that incision and drainage might become necessary should there be any exacerbation or any arrest in the healing process. The progressive increase in the pleural effusion did not alarm us, since we felt that this was only a supradiaphragmatic pleural reaction to infradiaphragmatic disease.

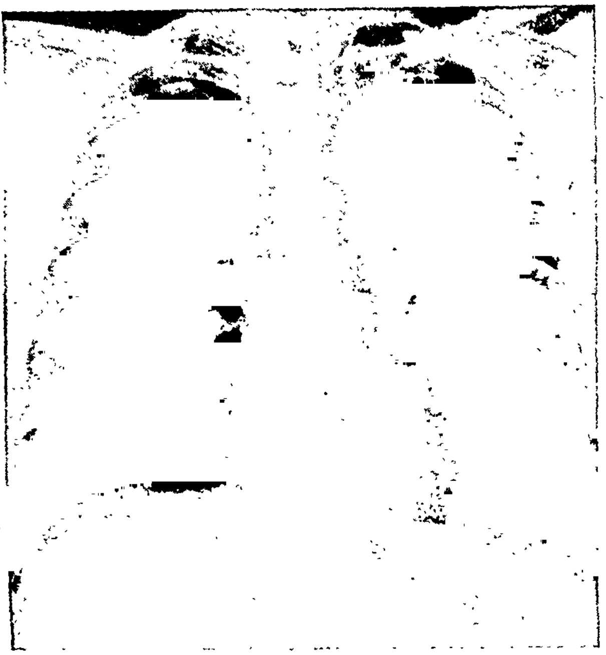


Fig. 3.—Chest roentgenogram, Nov. 1, showing normal lung fields, no effusion and a sharp outline of the right side of the diaphragm, which is no longer elevated.

Intravenous administration of oxytetracycline was continued for eight days in order to be certain that a high concentration of the drug would be maintained. Only after the leukocyte count had returned to a reasonably low level and after the patient was asymptomatic was oral therapy started. We felt oxytetracycline therapy should not be stopped until there was definite evidence of absorption of the subphrenic abscess. Thus this therapy was continued until there was evidence of decrease in the pleural effusion, indicating to us that the irritative phenomenon below the diaphragm was no longer active.

While the ideal method of selecting the proper drug would have been to have obtained a culture and then to test for the sensitivity of the offending organisms to various antibiotics, it was not felt safe to "needle" or drain the area in question at any time. Therefore a broad spectrum antibiotic was selected.

CONCLUSIONS

While we do not believe that the surgical principle of incision and drainage of abscesses is to be abandoned in favor of antibiotic therapy, we are in agreement with many others that we should reevaluate the management of abscesses, particularly in the so-called closed areas. Before the chemotherapeutic and antibiotic era, once an abscess had formed it was unusual for it to resolve, and the process was terminated by incision and drainage, spontaneous rupture with evacuation, or death.

Since Crile's report the conservative management of intra-abdominal abscesses with antibiotics has taken a definite place in our therapeutic armamentarium. As previously mentioned, one of us (J. Z.) has had excellent and sometimes surprising results employing antibiotics in the treatment of intra-abdominal abscesses. In the past five years he has not had occasion to incise and drain a pelvic abscess following ruptured appendicitis, all such abscesses resolving completely after continued intensive antibiotic therapy.

The management of intra-abdominal abscesses should be approached with an open mind. In all such cases conservative treatment should be given a fair trial, and, as in the case reported, should be continued only as long as there is obvious continued improvement in the patient's condition. Very often, the antibiotics will localize a spreading inflammatory process, and if the surgeon does not become impatient and institute incision and drainage at this point, continued therapy may cause complete resolution of the process. While it must be admitted that the nonoperative method of management may take longer than the operative in the eventual complete cure, the former method obviates an operative procedure with all the accompanying risks. Should the resolution of the process be arrested at any time, or should the general condition seem to be deteriorating with conservative therapy, surgical drainage can then be employed.

1930 Chestnut St. (Dr. Zaslow).

Therapeutic Radioisotopes.—The potential usefulness of radioisotopes can be illustrated through their substitution for x-rays. The cobalt^{60} isotope has a very hard gamma radiation. In this sense it is similar to radium. Since Co^{60} can be produced in large quantities and is cheaper than radium, it was quickly utilized as a radium substitute. Although there are many minor physical corrections to be considered, a cobalt needle will do everything a radium needle will do and will do it as well, but no better. However, since cobalt is plentiful and can be adapted to variable strength, shape, and sizes, extensions of the radium needle idea were easily visualized and have already been put into practice. Flexible threads of cobalt wire have been used. Powdered cobalt in plastic masses have been made. . . . The possibilities are limited only by the imagination of the investigator.—M. Brucer, M.D., Encouraging and Discouraging Research with Therapeutic Radioisotopes, *Journal of Kentucky State Medical Association,* June, 1953.

CONGENITAL ABSENCE OF A MAIN BRANCH OF THE PULMONARY ARTERY

Israel Steinberg, M.D.
Charles T. Dotter, M.D.
and
Daniel S. Lukas, M.D., New York

Ten cases of congenital absence of a main branch of the pulmonary artery have been reported in the literature.[1] The diagnosis was made at postmortem examination in seven instances [2] and during surgical exploration in two.[3] In only one recently reported case [1a] was the diagnosis made prior to surgery or death. In the two cases we are reporting, diagnosis was suspected on clinical and routine radiographic examinations and conclusively established by angiocardiography. Angiocardiography, pulmonary function studies, and cardiac catheterization were performed by methods previously described.[4]

REPORT OF CASES

CASE 1.—A 48-year-old practical nurse was first seen in the outpatient department five years ago. At that time, her chief complaint was of soreness in the chest and frequent sighing. A chest film taken a year earlier at another hospital was reported to have shown a mediastinal tumor. Bronchoscopy was not revealing, and no treatment was recommended.

Physical examination revealed the patient to be well developed, well nourished, and in no discomfort. Her weight was 63.7 kg.; height, 161.3 cm.; and blood pressure 150/80 mm. Hg. The only abnormality was hyper-resonance over the left side of the chest and diminution of the breath sounds over the right side. The thorax was symmetric, and respiration was equal bilaterally. Laboratory examinations including urine, blood, and blood chemistry studies and electrocardiography revealed nothing abnormal. The chest film (fig. 1 *A*) showed overdistention of the left lung with displacement of the trachea to the right. The right lung appeared small and showed marked diminution of the pulmonary vasculature. The heart was normal in size and shape, and there was no parenchymal disease of the lungs. Fluoroscopic examination showed an increased mediastinal shift toward the right on deep inspiration and a greater excursion of the left side of the diaphragm. Findings on bronchoscopy again were unremarkable. Angiocardiography (fig. 1*B*) revealed absence of the right pulmonary artery. Results of the pulmonary function studies are recorded in tables 1 and 2. The patient has been under observation for five years, and, during that period, there has been no dyspnea, although she continues to sigh and complain of vague discomfort in the chest. A low basal metabolic rate discovered in 1950 was corrected by treatment with thyroid.

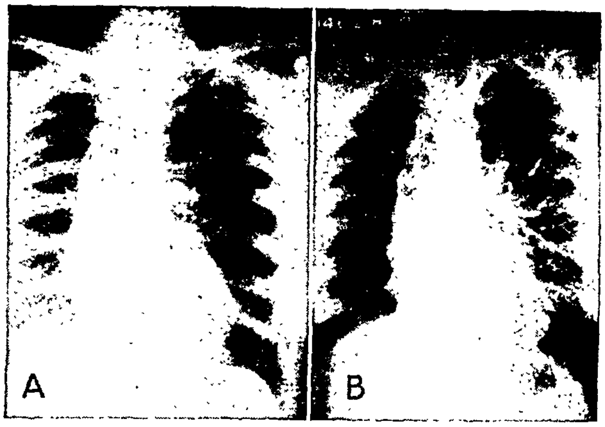


Fig. 1.—*A*, conventional frontal roentgenogram shows the left lung overdistended, causing tracheal deviation to the right and mediastinal herniation. Vasculature in small right lung is diminished. *B*, frontal angiocardiogram shows absence of right pulmonary artery. Left pulmonary artery and arterial tree are normal.

CASE 2.—A 24-year-old mechanic came to the hospital in January, 1952. Six years earlier, his enlistment in the Naval Reserve was terminated after a few weeks when it was seen on a routine chest film "that the right lung was pushed toward the heart." The patient was asymptomatic. Physical examination revealed him to be well developed and well nourished. His weight was 82 kg.; height, 183 cm.; and blood pressure, 142/72 mm. Hg. The chest was symmetric and normal except for hyper-resonance of the right lung and diminution of the breath sounds in the left lung. Routine laboratory studies and bronchography of both lungs showed nothing abnormal.

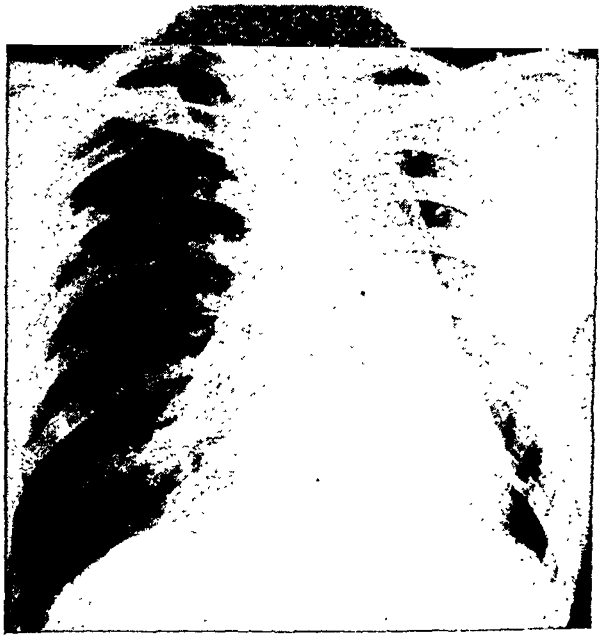


Fig. 2.—Conventional frontal roentgenogram shows marked overdistention of the right lung, left tracheal deviation, and mediastinal herniation. Left lung is small and has little vascularity.

From the Departments of Medicine and Radiology and the Cardiopulmonary Laboratory, the New York Hospital-Cornell Medical Center.

This study was aided by grants from the New York Heart Association and the New York Hospital-Cornell Medical Center Research Fund.

Owing to lack of space, some of the authors' bibliographic references have been omitted in THE JOURNAL and will be included only in the authors' reprints.

[1] (*a*) Madoff, L. M.; Gaensler, E. A., and Strieder, J. W.: Congenital Absence of Right Pulmonary Artery: Diagnosis by Angiocardiography, with Cardiorespiratory Studies, New England J. Med. **247**: 149, 1952. (*b*) Ambrus, G.: Congenital Absence of Right Pulmonary Artery with Bleeding into Right Lung, J. Tech. Methods **15**: 103, 1936. (*c*) Miller, J. F.: Congenital Absence of Right Pulmonary Artery in New-Born Infants, with Resulting Necrosis of Lung and Spontaneous Pneumothorax, Am. J. Dis. Child. **53**: 1268 (May) 1937. (*d*) Fräntzel, O.: Ein Fall von abnormer Kommunication der Aorta mit der Arteria Pulmonalis, Virchows Arch. f. path. Anat. **43**: 420, 1868. (*e*) Findlay, C. W., Jr., and Maier, H. C.: Anomalies of Pulmonary Vessels and Their Surgical Significance, with Review of Literature, Surg. **29**: 604, 1951. (*f*) Thomas, H. W.: Congenital Cardiac Malformation, J. Tech. Methods **21**: 58, 1941. (*g*) Döring, H.: Angeborener Defekt der rechten Lungarterie, Stud. Path. Entw. **2**: *41, 1914.* (*h*) *Müller, L.: Ueber Angeborene Atresie der rechten Pul*monalarterie bei einen Erwachsenen (Beitrag zur Kenntnis des Kollateralkreislaufs der Lunge), Ztschr. f. Kreislaufforsch **19**: 561, 1927. (*i*) Blalock, A.: Technique of Creation of Artificial Ductus Arteriosus in Treatment of Pulmonic Stenosis, J. Thoracic Surg. **16**: 244, 1947.

[2] Footnotes 1*b* through *h*.

[3] Footnotes 1*e* and *i*.

[4] (*a*) *Robb, G. P., and Steinberg, I.: Visualization of the Chambers* of the Heart, the Pulmonary Circulation and Great Blood Vessels in Man: A Practical Method, Am. J. Roentgenol. **41**: 1, 1938. (*b*) Lukas, D. S., and Plum, F.: Pulmonary Function in Patients Convalescing from Acute *Poliomyelitis with Respiratory Paralysis, Am. J. Med.* **12**: *388, 1952.* (*c*) Lukas, D. S., and Dotter, C. T.: Modifications of the Pulmonary Circulation in Mitral Stenosis, Am. J. Med. **12**: 639, 1952.

Studies of pulmonary function are recorded in tables 1 and 2. Table 3 shows the data obtained by cardiac catheterization. A chest film (fig. 2) and fluoroscopy revealed that the right lung was overdistended and occupied two-thirds of the thoracic cavity. The trachea and mediastinum were shifted to the left. The lung fields were clear and well aerated; the heart was normal in size and shape. The diaphragm moved normally. Angiocardiography, both the frontal and left oblique views, demonstrated absence of the left pulmonary artery (fig. 3). The patient has remained asymptomatic.

COMMENT

Of the 12 reports of congenital absence of a main branch of the pulmonary artery now available in the literature, 10 of the patients were men and 2 were women. The right pulmonary artery was absent in eight instances, and the left was absent in four. The causes of death in the seven patients at autopsy were: hemorrhage into the lung not having a pulmonary artery,[1b] necrosis and tension pneumothorax of the unaffected lung,[1c] cardiac failure in two patients,[5] cyanotic congenital heart disease,[1f] and infection not related to the pulmonary artery in two.[6] Our patients and the one recently reported are the only ones free of serious cardiac and great vessel anomalies. The defects in embryologic development that produce absence of a branch pulmonary artery are poorly understood.[7]

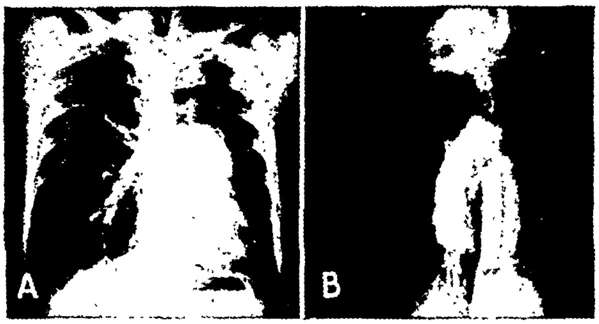


Fig. 3.—*A*, frontal angiocardiogram and, *B*, left oblique angiocardiogram show absence of the left pulmonary artery.

Absence of a main branch of the pulmonary artery produces characteristic changes in the appearance of the lungs on a conventional roentgenogram of the chest. One of the lungs is small and contains few vascular markings. The other lung is overdistended and well vascularized and displaces the mediastinal structures with the production of mediastinal herniation. Both lungs are clear, well aerated, and free of disease. The appearance of the mediastinal shift may arouse suspicion of a mediastinal tumor as it did in one of our cases. Angiocardiography is diagnostic in that absence of the branch of the pulmonary artery to the hypoplastic lung is evident (fig. 1*B* and 3). A systemic blood supply to the lung lacking pulmonary artery circulation was not demonstrated in our patients but probably exists, as it was present in 9 of the 10 patients previously reported.

Physiological studies confirmed the extremely mild functional disability present in our patients. Lung volumes, maximum breathing capacity, ventilation, and blood gases were normal in the man (case 2). The fact that the area of alveolar-capillary membrane available for gas exchange was sufficient is clearly demonstrated by the normal diffusion capacity for oxygen. If the area had been inadequate, the diffusion capacity would have been small.

In the older woman (case 1), increased residual and total lung volumes and slight diminution of maximum breathing capacity were definite evidence of fixed hyperinflation of the lungs, probably resulting from some loss of elasticity of the overdistended lung. Intrapulmonary mixing and alveolar distribution of air were normal, however, proving that true emphysema was not present. This patient was slightly dyspneic after the standard 30 step, one minute exercise.

Table 1.—*Lung Volumes and Ventilation Data (BTPS) of Two Patients with Absence of a Main Pulmonary Artery Branch*

	Case 1		Case 2	
	Observed	Predicted	Observed	Predicted
Lung volumes, cc.				
Vital capacity	2,820	2,761	4,601	4,582
Residual volume	1,803	844	1,082	1,145
Total capacity	4,623	3,608	5,883	5,727
$\frac{\text{Residual volume}}{\text{Total capacity}}$, %	39	23	18	20
Maximum breathing capacity, liter/min.	67	81	102	150
Ventilation, liter/min./sq. m. of body surface area				
Rest	3.8	3.2	3.6	3.6
Exercise	10.3	11.4	10.9	11
First min. recovery	....	....	12	12.5

The only significant defect in pulmonary function found in both patients was an increased dead space to tidal volume ratio resulting from ventilation of the lung not supplied by a pulmonary artery. The resting dead space, however, was not greatly increased; thus it was indicated that the vascular lung preferentially received the greater portion of each tidal volume. This was probably due to the smaller size of the avascular lung and further encroachment on it during inspiration by the herniated one.

Table 2.—*Blood Gases and Ventilation-Perfusion Relationships of Two Patients in Whom a Main Branch of the Pulmonary Artery Was Absent*

	Case 1	Case 2	Normal
Alveolar N_2 after 7 min. breathing oxygen, %	1.4	1.1	<2.5
Arterial blood			
Oxyhemoglobin saturation, %			
Rest	93.2	93.8	97
Exercise	..	94.3	97
pCO_2, mm. Hg	45	43	40
Alveolar-arterial oxygen gradient, mm. Hg	14	7	<12
$\frac{\text{Dead space}}{\text{Tidal volume}}$, %	34	34	<30
$\frac{\text{Venous admixture}}{\text{Pulmonary blood flow}}$, %	5	5	< 6
Diffusion capacity of alveolar membrane for oxygen, cc./min./mm. Hg	..	24	20

Since bronchospirometry was not done, it is impossible to calculate how much the lung without a pulmonary arterial blood supply contributed to gas exchange. Previous studies on man and animals indicate that such a lung is capable of exchanging gases to some extent by

---

5. Footnotes 1*d* and *e*.
6. Footnotes 1*g* and *h*.

virtue of blood flowing through bronchial artery-pulmonary capillary anastomoses.[8] Since the blood has been arterialized by passage through the normal lung, it is capable of releasing only subnormal amounts of carbon dioxide and combining with even slighter amounts of oxygen.

The normal pulmonary vascular bed is large enough to permit an increase in blood flow up to three times the normal resting value without increase in pulmonary artery pressure.[9] With greater flows, the pressure exceeds normal. On the basis of this knowledge of pulmonary circulation, it is not surprising that the resting pulmonary artery pressure in the man (case 2) was found to be normal, with a blood flow exactly twice the usual value through the normally functioning lung. Mild pulmonary arterial hypertension did develop during exercise that caused the cardiac output to be doubled. This change in output corresponds to a fourfold increase of pulmonary blood flow in a person with two normal lungs. In all respects, the pulmonary circulation in this patient (case 2) was like that in a person who has had pneumonectomy.[9b]

TABLE 3.—*Catheterization Data Obtained From Patient in Case 2*

	Rest		Exercise	
	Observed	Normal	Observed	Normal
Cardiac index, liter/min./sq. m. of body surface area	3.0	3.4	6.0	> 4.4
Pressures, mm. Hg				
Pulmonary "capillary" mean	8	<10	7	<12
Pulmonary artery				
Systolic/Diastolic	29/8	25/8	33/11	25/8
Mean	16	15	21	15
Pulmonary vascular resistance, dynes sec./cm.$^{-5}$	106	100	92	<100

The management of patients with this condition is relatively simple. Prompt treatment of any respiratory infection, particularly infection in the vascular lung, is essential. Since, if there is an increase in pulmonary blood flow, pulmonary arterial hypertension occurs more readily than normal, severe forms of exercise are contraindicated.

SUMMARY AND CONCLUSIONS

Two cases of isolated congenital absence of a main branch of the pulmonary artery are presented. The asymptomatic state of the patients is explained by the mild respiratory and cardiovascular disability observed on pulmonary function and cardiac catheterization studies. The ages of the patients, 53 and 26 years, and their continued well-being during follow-up examination suggests that the prognosis is favorable, barring any complicating disease of the "good" lung.

Such a diagnosis may be suspected when conventional roentgenogram of the chest reveals overdistention and mediastinal herniation of one lung with hypoplasia and diminished vascularity of the affected lung. Absence of a main pulmonary artery branch is conclusively demonstrated by angiocardiography. It is predicted that more instances of this entity will be recognized in this way.

525 E. 68th St. (21) (Dr. Steinberg).

DERMATOSES AMONG OFFICE WORKERS

George E. Morris, M.D., Boston

Skin eruptions among office workers are not common and thus have been seldom reported, but, inasmuch as they do comprise about 3% of the cases seen by the actively practicing industrial dermatologist, there has been a definite need of more literature on this subject. Prior to this writing, infrequent reference has been noted to unconnected cases of dermatitis from carbon paper and from contact with glue and typewriter ribbons. Schwartz, Tulipan, and Peck,[1] in pointing out that office workers may also suffer from erythema ab igne and dermatitis from the glue on stamps and envelopes, have urged that more attention be given to recording correlated cases of eruptions treated among office workers.

This is a report based on an analysis of 1,213 patients treated by me, all of whose dermatoses were proved to be caused by industrial factors. Among them were 36 office workers, who contacted the conditions as follows: 4 from carbon paper, 5 from paper, 6 from glue, 2 from cardboard, 12 from various machine dyes and inks and the chemicals used to remove them, 1 from paper towels, together with the 6 cases described in this report, which seem to be of especial interest.

REPORT OF CASES

CASE 1.—The patient, aged 45, was first seen in 1945. He complained of a rash of the finger webs and on his fingers, which he had endured for four years. He stated that he had never experienced any eruptions previous to the onset of the one on his hands, and he denied ever having had ringworm on his feet. He had been seen by four dermatologists, who had told him his rash was not due to his work. He said that he handled carbon paper and cards and that he cleaned his hands frequently with bar soap. On examination, all the finger webs were found to be red and vesicular, and the vesicles extended up onto the fingers. On two occasions, scrapings were taken for fungi, but the tests proved negative. The patient was told that his eruption could not be due to the nature of his work, and he was discharged from treatment. He was subsequently seen in 1951. He had then been attended by 11 dermatologists, including myself, and all 11 had found that his eruption was not due to his work. He stated that his hands had cleared up somewhat while he was on vacation in 1949, and had completely cleared in 1950 while he was in the hospital 10 weeks. His hands had started to break out again within a week after his return to work (fig. 1*B*). There was no change in the nature of his work as a clerk, and in the course of his daily duties he handled only paper, cards, and carbon paper. When questioned as to any other manifestations on his skin, he remarked that he had had a "burn" on his leg from foam rubber when his leg had been in traction while in the hospital. Questioning then brought out the fact that he used elastic rubber bands all day long in filing away his cards. On further inquiry, he then stated that he had had eruptions previously on his arm from elastic bands and on his leg from garters.

Thus, *11 years after the onset of his eruption, the patient* was patch-tested with elastic bands, with black carbon, and with red carbon, the result being that he showed a positive test to the elastic band and also the red carbon paper. He was told to avoid the use of carbon paper and elastic bands, and then he improved, only to break out subsequently with new blisters on his fingers, at which time he was found to have a positive patch test to a green rubber blotter on his desk. The blotter was removed, whereupon his skin cleared again, but

---

Assistant Clinical Professor of Dermatology, Tufts College Medical School.

[1] Schwartz, L.; Tulipan, L., and Peck, S. M.: Occupational Diseases of the Skin, ed. 2, Philadelphia, Lea & Febiger, 1947.

broke out shortly after his office was furnished with green leatherette chairs. He was tested with a patch of the leatherette, and had a 3+ test to the green leatherette. The patient was removed from contact with all these materials and has been free of a dermatitis for over a year, while still working in the same office.

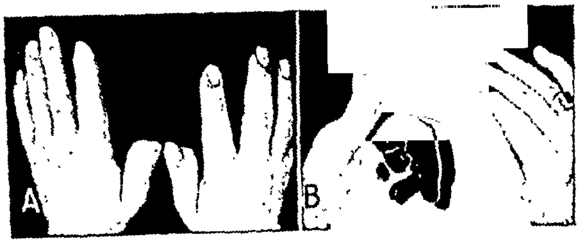


Fig. 1.—Dermatoses caused by contact with rubber products. *A*, caused by elastic rubber bands. *B*, caused by rubber thumb.

In addition to this case, three officer workers have been treated for eruptions emanating from their use of "rubber thumbs" or rubber finger-tops worn while counting or picking up cards in the course of their work (fig. 1*B*).

Case 2.—A clerical worker evidenced an eruption of her thumb and of the second and third fingers of her right hand, which had been present for over two months. She stated that she had been working in the same office during that period, and that she handled nothing but paper and pencils at her work. According to the patient, the eruption occurred in the places where she held the pencil while at work. She was wont to hold her pencil in an unorthodox manner, so that it touched the thumb and the approximating surfaces of the second and third fingers, as shown in figure 2*A*. She was patch-tested with the pencil, both as to the green outer paint and as to the wood on the inner part of the pencil. She had a negative test to the wood of the pencil, but a positive test to the green paint. She was removed from contact with colored pencils, and her eruption cleared.

Case 3.—A stenographer complained of an eruption (fig. 2*B*), which was found to be due to liquid soap from a soap dispenser in the office building where she worked. After elimination of other substances, it was noted that the rash occurred in the approximate places on the palms of her hands where the liquid soap had dropped after being released by means of the push-up plug. Test to the diluted soap showed a 4+ reaction. The eruption was cleared by the use of a cleanser (not a soap) with a pH of 7.

CONCLUSIONS

When a patient complains of a rash that he believes to be due to something encountered in his work, it is only prudent to test him with various materials with which he comes in daily contact. Dermatitis from rubber bands has not been emphasized as a cause of contact dermatitis. Failure to consider all the factors present was the reason why 11 dermatologists, including myself, missed the diagnosis in case 1. In that instance, certain vagaries were present, which could be disclosed only by patch-testing. Such vagaries were manifested by consistencies and inconsistencies, i. e., the patient had a positive test to elastic, which is one form of rubber, to a green rubber blotter, to a green leatherette chair (which may have been made partially from rubber), and also to a red carbon paper, whereas tests to blue carbon and to a black leatherette book cover proved negative.

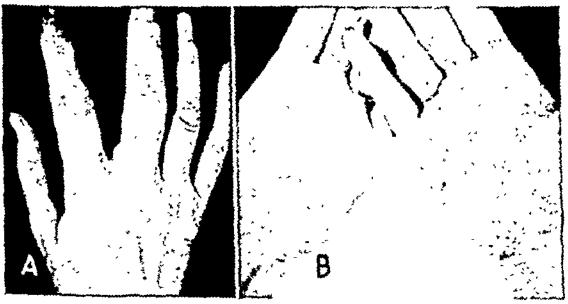


Fig. 2.—Dermatoses caused by contact with common equipment. *A*, caused by paint from pencil. *B*, caused by liquid soap.

520 Commonwealth Ave.

VOLVULUS OF THE SMALL INTESTINE COMPLICATING PREGNANCY

REPORT OF A CASE

Phillip H. Halperin, M.D.,
Bela Kent, M.D.,
and
Sidney Rubin, M.D., Kansas City, Mo.

This case of intestinal obstruction is reported because it not only is a rare complication of pregnancy but also is a diagnosis seldom considered since the symptoms so closely simulate those occurring in normal pregnancy. Only six cases have been reported in the American literature.

The patient was a 19-year-old pregnant woman whose last menstrual period was in August, 1951. Two years prior to her pregnancy she had had an appendectomy with an uneventful postoperative period. The patient suffered rather severe hyperemesis gravidarum and displayed a marked anxiety state during the first three months of pregnancy. With frequent reassurance, her fear of pregnancy and childbirth disappeared, and the hyperemesis lessened, although it never stopped completely. She first felt life in November. On Dec. 16, 1951, at 4 a. m., the patient awoke with severe upper abdominal pain and vomiting. The acute pain and vomiting subsided for several hours, and upon recurrence of these symptoms she was admitted to the hospital. On admission she did not appear to be acutely ill. Her temperature was 98.6 F, pulse rate 90, and blood pressure 120/80 mm. Hg. The fundus of the uterus was soft and was palpable one fingerbreadth above the umbilicus; no contractions were observed. The fetal heart rate was 150 and regular. The upper abdomen was not distended, and no rigidity was evident. There was no increased peristalsis and no palpable tumor mass. Meperidine (Demerol) hydrochloride (100 mg.) was given to relieve pain, and 1,000 cc. of 5% glucose in saline, and 1,000 cc. of 5% glucose in water with Lyo-B-C (a preparation containing the principal B complex factors and ascorbic acid) was given intravenously to prevent dehydration. The condition was first believed to be pyelitis of the left kidney, since the pain was more pronounced in the left flank. The total leukocyte count was 12,500. A differential count showed 85% polymorphonuclears and 12% stab cells. After a urine specimen was obtained by catheterization, 600,000 units of penicillin and 1 gm. of streptomycin were given. Results of urinalysis were negative. The patient spent a fairly comfortable day. The tenderness in the upper abdomen shifted to the right upper quadrant, and the vomiting still persisted; however, no rigidity or masses were found. The pulse and temperature remained within normal limits. The possibility of intestinal obstruction was considered, and a flat roentgenogram of the abdomen was

---

From the Department of Surgery, Menorah Hospital Medical Center, and University of Kansas Medical Center (Dr. Halperin), the Department of Obstetrics and Gynecology (Dr. Kent), and the Department of Radiology (Dr. Rubin) Menorah Hospital Medical Center.

taken (fig. 1). This scout film revealed no undue distention of the small bowel, and gas was seen distributed throughout the large intestine; thus, there were no signs of obstruction. The patient still needed an occasional dose of meperidine for relief of the pain, but the vomiting had subsided. A laxative was given at bedtime, and the next morning, on the third hospital day, an enema was given with fair results. The patient felt comfortable, retained all of her food, and complained very little of pain. At this time masses still were not evident although there was some distention and localized tenderness in the right upper abdomen. The possibility of cholecystitis and cholelithiasis was considered, but the tenderness was lower than the gallbladder region. On the fourth hospital day the patient was almost completely free of subjective symptoms. She had several small bowel movements and felt well. Examination at this time revealed a soft, tender mass in the right upper abdomen with very little distention. The temperature was 99.6 F and the pulse rate 100.

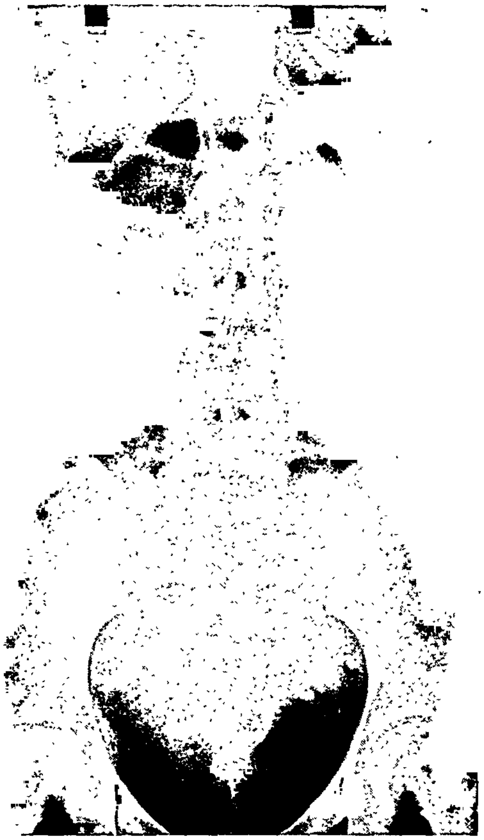


Fig. 1.—Roentgenogram revealing gas scattered throughout the large intestine. Some bowel gas is visualized in the upper right quadrant. A soft tissue mass extends upward from the pelvis to the level of the fourth lumbar body. A fetus of five months' gestation is present within the uterus.

On the fifth hospital day the patient started to vomit again. The pain increased, and the mass was larger and tender. The leukocyte count increased to 24,000, with 57% polymorphonuclears, 28% stab cells, and 10% lymphocytes. Clinically the diagnosis of intestinal obstruction was obvious, and a second scout film (fig. 2) revealed distention similar to that seen in small bowel obstruction. In addition there was a loss of the valvulae conniventes, which we believed to be suggestive of vascular impairment. The patient was prepared by adequate fluids and intestinal decompression, and, the same day, exploratory operation was performed through a right upper rectus incision.

When the abdominal cavity was opened, the omentum was found encasing the mass. The omentum was carefully dissected away, revealing two loops of jejunum that were dilated to approximately 8 cm. The loops were almost black and were lusterless, with definite loss of normal motility. The loops of small intestine were carefully dissected from the surrounding structures. A torsion at the base of the mesentery was found. This was uncoiled, and then a resection 5 cm. proximal and distal to the area of infarction was accomplished. An end-to-end anastomosis was performed, an outer row of 4-0, gastrointestinal silk sutures placed at intervals of 4 to 5 mm., and interrupted 4-0, gastrointestinal absorbable surgical sutures used for the inner row. A peritoneal graft was then cut from the wound edge and used as a patch over the anastomotic line as described by Chester, Bell, and McCorkle.[1]

The patient was treated by intestinal decompression with the Miller-Abbott tube while receiving fluids intravenously for five days. After this she was given soft foods. She made an uneventful recovery and was discharged on the 11th postoperative day. At no time during the illness was her pregnancy threatened. On May 5, 1952, the patient delivered a full-term, viable boy. There were no complications during the delivery, and the patient has gained 20 lb. (9.1 kg.) since surgery was performed.

COMMENT

In evaluation of this case, the difficulty in making a correct diagnosis is readily evident. In normal pregnancy pain may be associated with vomiting, distention, and constipation, all prevalent classical signs and symptoms. Upper abdominal pain is not uncommon during pregnancy, because the diseases of the upper abdominal organs are relatively common during this period. Thus, gallbladder disease, kidney infections, hyperacidity of the

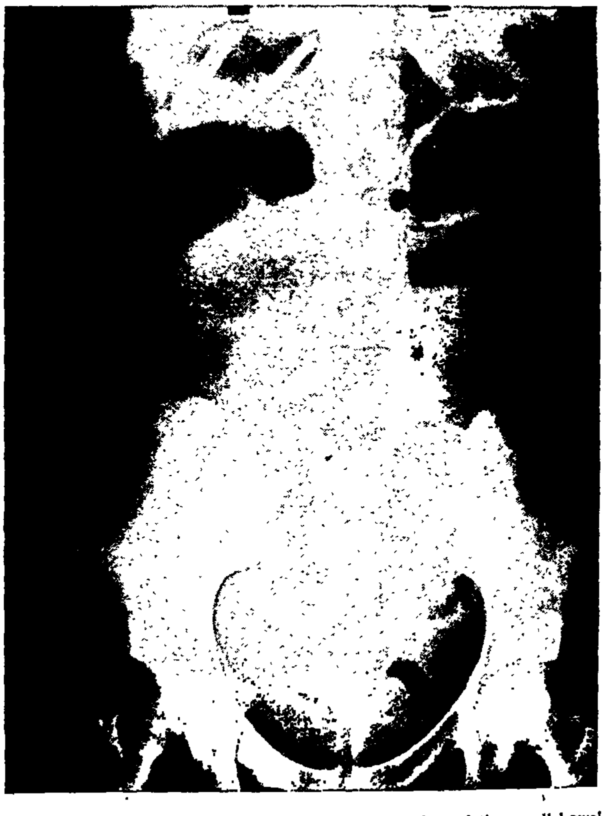


Fig. 2.—Follow-up film demonstrating the distention of the small bowel with an abrupt loss of valvulae conniventes in suspected jejunal loops. Note that air is still observed in the large intestine, a finding not infrequent in volvulus of the small intestine.

---

[1] Chester, S. T.; Bell, H. G., and McCorkle, H. J.: Use of Free Peritoneal Grafts in Intestinal Anastomoses, Surg., Gynec. & Obst. 89: 605-608 (Nov.) 1949.

stomach, premature labor, separation of the placenta, and degeneration of fibroids will initiate the same kind of symptoms as intestinal obstruction.

Vomiting is one of the commonest symptoms of normal pregnancy. Although most textbooks state that the typical hyperemesis gravidarum does not last longer than three months, every obstetrician has had patients who have vomited all through pregnancy. The same difficulties are encountered if we look for the physical signs of intestinal obstruction. Distention can be caused by other conditions such as the ileus associated with pyelitis.[2] If the obstruction is high, distention may not be marked. Visible peristalsis may sometimes be observed in the lower intestinal tract during the first trimester of normal pregnancy.

Pregnancy per se may cause intestinal obstruction under exceptional circumstances such as those described by Dibot. In his case, the uterus contained 14 liters of amniotic fluid in addition to twin fetuses. The marked enlargement of the uterus caused mechanical pressure on the rectosigmoid. Torsion of the small intestine has been caused by mesenteric cysts, acute appendicitis, Meckel's diverticulum, and inflammatory adhesions. The commonest location for volvulus has been in the sigmoid, where torsion was the cause in 41 of the 80 reported cases. In 19 of the remaining 39 cases, other portions of of the large intestine were involved. Thus, in only 20 cases was the volvulus confined to the small intestine, as in this case.[3]

The roentgenologic diagnosis of acute intestinal obstruction is some times very difficult. The confusion is due to the occasional true ileus of pregnancy that is observed in normal pregnancy or associated with a pyelitis.[2] In each case, the radiological report must be integrated with information gathered from the history and physical examination. In cases in which the clinical findings suggest an obstruction, a follow-up scout film should be made within 12 to 24 hours. This procedure should be emphasized, because it demonstrates the progression of gaseous distention that is so important in diagnosis of obstruction. The serial film confirmed the diagnosis in this case and has been valuable on other occasions when the original film was inconclusive. Furthermore, the serial flat plate suggested impairment of blood supply in that the appearance of the jejunal loops showed an abrupt loss of valvulae conniventes.

The treatment of volvulus is surgical intervention as soon as the diagnosis is made, except when the patient has reached the third trimester of pregnancy and the size of the uterus interferes with the surgical procedure. Because of the height and size of the uterus at this stage it may mechanically displace the intestinal loops so that they become inaccessible. In such circumstances it is advisable to induce labor, empty the uterus, and then proceed with the laparotomy. Some physicians feel that the emptying of the uterus may release the obstruction, or volvulus, but we believe that this is a dangerous procedure in that valuable time is wasted in observation of the patient after delivery. The prognosis is improved when the patient is operated on at the earliest sign of obstruction. When there has been undue delay in surgical intervention the maternal mortality approaches 60%.

SUMMARY

Early diagnosis of volvulus of the small intestine occurring during pregnancy is difficult, because some of the normal signs of pregnancy are similar to signs observed in cases of obstruction. The importance of employing not only a single scout film of the abdomen but also a follow-up film in 12 to 24 hours is emphasized. In early volvulus the first roentgenogram may disclose no abnormality and thus be misleading. Diagnosis of obstruction of roentgenogram is further complicated by the fact that normal ileus of pregnancy must be differentiated from obstruction. The prognosis is greatly improved if the volvulus is diagnosed early and surgical correction undertaken. Delay is responsible for almost a 60% maternal mortality.

409 Professional Bldg. (Dr. Halperin).

[2] Stoeckel, W.: Bemerkungen zu dem Aufsatz von F. C. Hilgenberg: "Ileus bei Pyelitis gravidarum," Zentralbl. f. Gynäk. 53: 1462-1467 (June 8) 1929.

[3] Braun, G.: Die Enterostenosen in ihrer Beziehung zur Gravidität und Geburt, Wien. med. Wchnschr. 35: 761-765, 1885. Lambert, A. C.: *Thesis*, Paris, 1931. Kohn, S. G.; Briele, H. A., and Douglass, L. H.: Volvulus Complicating Pregnancy, Am. J. Obst. & Gynec. 48: 398-404 (Sept.) 1944.

HEMOPERICARDIUM WITH TAMPONADE DURING ANTICOAGULANT THERAPY OF MYOCARDIAL INFARCT

REPORT OF A CASE WITH RECOVERY FOLLOWING PERICARDIOTOMY

O. Alan Rose, M.D.
Roy H. Ott Jr., M.D.
and
Herbert C. Maier, M.D., New York

Significant pericardial hemorrhage has been reported to have resulted from a number of precipitating factors during the administration of anticoagulants. These include nonpenetrating trauma to the heart,[1] tumor involving the pericardium, and pericarditis of the nonspecific type [2] as well as that associated with myocardial infarction. Reports of hemopericardium with tamponade complicating anticoagulant therapy of acute myocardial infarction have been made by Nichol [3] and by Goldstein and Wolff.[4] Syner [5] has reported a case with relief of tamponade by pericardial aspiration. The purpose of this paper is to report a case in which the relief of cardiac tamponade by pericardiotomy was a life-saving measure.

REPORT OF A CASE

A 48-year-old accountant was admitted to Lenox Hill Hospital on March 4, 1952, with the complaint of a burning sensation in the throat and substernal region. This had been noted for the previous two days on walking and had been constant for the four hours prior to admission. There was accompanying weakness, nausea, and diaphoresis. The past history was un-

---

From the Medical and Surgical Services of the Lenox Hill Hospital.

[1] Leedham, C. L., and Orbison, J. A.: Cardiac Tamponade Associated with Administration of Dicumarol, Circulation 1: 1065 (April) 1950.

[2] McCord, M. C., and Taguchi, J. T.: Nonspecific Pericarditis: A Fatal Case, A. M. A. Arch. Int. Med. 87: 727 (May) 1951.

[3] Nichol, E. S.: The Risk of Hemorrhage in Anticoagulant Therapy, Ann. West. Med. & Surg. 4: 71 (Feb.) 1950.

[4] Goldstein, R., and Wolff, L.: Hemorrhagic Pericarditis in Acute Myocardial Infarction Treated with Bishydroxycoumarin, J. A. M. A. 146: 616 (June 16) 1951.

[5] Syner, J. C.: Extensive Pericarditis Complicating Myocardial Infarction. U. S. Armed Forces M. J. 3: 699 (May) 1952.

remarkable. There was no evidence of previous coronary insufficiency, hypertension, or diabetes. The patient's father died of heart disease at the age of 53. The review of systems was negative.

The physical examination revealed a well-developed, well-nourished white man, in no apparent distress. The temperature was 98.4 F (R), pulse 60, respirations 19, and the blood pressure 140/90 mm. Hg. The heart was not enlarged and had sounds of good quality. No murmur, rub, or gallop was heard. The rhythm was regular, with the ventricular and peripheral rates equal. There were no signs of congestive heart failure.

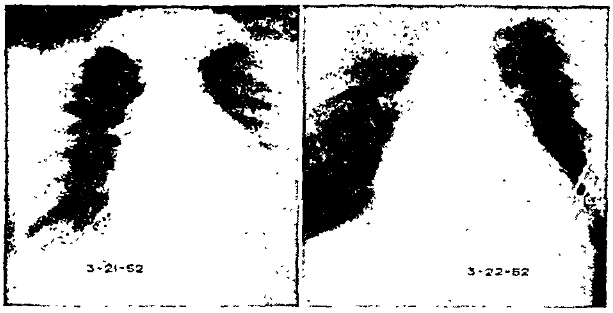


Fig. 1.—Bedside films of patient with cardiac tamponade after anticoagulant therapy taken the day prior to and immediately following surgery.

The electrocardiogram on admission showed marked depression of the ST segments in lead 1, elevation in leads 2 and 3, and depressed ST segments in the precordial leads, where inverted T waves were present. Except for variations, which will be noted, subsequent cardiograms showed the progressive changes seen in posterolateral myocardial infarction. The white blood cell count was 11,600 and the erythrocyte sedimentation rate 37 mm. per hour (Westergren).

The patient was placed on a coronary regimen with bed rest, oxygen, sedation, narcotics as needed, and anticoagulants. Heparin was given subcutaneously in a dose of 50 mg. every 6 hours for 48 hours. Bishydroxycoumarin (Dicumarol) was administered, 300 mg. initially, then 200 mg. and 150 mg. on consecutive days. On the second hospital day, the temperature rose to 102 F (rectal), but he had no complaints. On the third day, he complained of almost continual aching substernal pain. A pleuropericardial friction rub was heard. The prothrombin time was 25 seconds (control, 11 to 13 seconds). The patient still had a temperature of 101 to 101.8 F (rectal), and chest pain persisted. A slight friction rub was heard inconstantly. There were no signs of congestive heart failure, and the patient seemed to be improving.

On the eighth hospital day, a more marked friction rub was heard over the entire precordium. It was closer to the ear, louder, and more leathery in quality than the previous rub. The electrocardiogram showed ventricular premature systoles and short runs of ventricular tachycardia. These were controlled by oral administration of procaine amide hydrochloride (Pronestyl). The prothrombin time was 39 seconds (control, 11-13 seconds). The patient's temperature slowly dropped, and he appeared improved. The heart sounds were of better quality and the intensity of the friction rub lessened. On the 12th hospital day, the patient began to complain of nausea, which was followed by vomiting. His skin became pallid and cold. The prothrombin time was 41 seconds (control, 11 to 13 seconds). On the 13th day, his venous pressure was 250 mm. H_2O. He was digitalized and given mercurials with little or no response.

On the 14th day, his chest was clear and the heart sounds were of poor quality and intensity. There was evidence of cardiac enlargement. The blood pressure was paradoxical, being unobtainable during the inspiratory phase of respiration but during expiration, pressures of about 100/70 mm. Hg were present. The liver was palpable 4 fingerbreadths below the right costal margin. No peripheral edema was noted. An electrolyte imbalance was found with a serum sodium of 126 mEq. per liter and a potassium of 6.3 mEq. per liter. The blood urea nitrogen rose from normal levels to 76.4 mg. per 100 cc. During the next four days, the serum sodium ranged from 118 to 120 mEq. per liter, and the serum potassium from 6.4 to 5.9 mEq. per liter, with a hematocrit of 42.9 to 38.2%. The plasma chlorides ranged from 543 to 506 mg. per 100 cc. (570 to 620 mg. per 100 cc., normal). The venous pressure was 300 mm. H_2O. The prothrombin time rose abruptly on the 14th day to 84 seconds, (control, 11-13 seconds), and anticoagulants were discontinued. Synthetic vitamin K was given intravenously. The prothrombin time returned to the previous levels and then to normal. Roentgenograms showed increasing heart size. The form of the electrocardiogram did not change, but the voltage became progressively lower. It was still not possible to differentiate with reasonable certainty between cardiac dilatation and pericardial effusion with tamponade. The cardiac status continued to deteriorate.

On March 21, 1952, the 18th hospital day, physical signs and x-ray evidence (fig. 1) were considered to be more consistent with cardiac tamponade than with dilatation. The following day, the prognosis with no further treatment appeared hopeless and a pericardiotomy was performed with the patient under local anesthesia. About 700 cc. of hemorrhagic fluid was removed. It contained 5.8 gm. of hemoglobin per 100 cc. and did not clot. During controlled release of pericardial fluid, the pulse pressure progressively increased. The blood pressure changed from 90/70 mm. Hg, obtainable only during the expiratory phase of respiration, to 130/80 mm. Hg, throughout the respiratory cycle. The patient's condition improved rapidly. Serosanguineous pericardial fluid continued to drain for several days. During the subsequent 24 hours, the urinary output exceeded 5 liters and was of extremely low specific gravity. For the following three days, his urine output was between 3 and 4 liters per day, and the total fluid output exceeded the intake with a negative fluid balance of 2 to 3 liters for five days. The electrolyte balance and blood urea nitrogen returned rapidly to normal. The venous pressure on the 24th day was 98 mm. H_2O.

On the 24th hospital day, generalized lesions of erythema multiforme developed, which were considered to be due to penicillin given postoperatively. In the eighth week of his illness, the patient began ambulation, which was interrupted by a febrile illness with temperature to 103 to 104 F (rectal), tachycardia, and generalized muscular aches and pains, probably viral in nature. He stood this complication well, without any symptoms of coronary or cardiac insufficiency. Ambulation was continued, and the patient was discharged asymptomatic. The heart showed only slight generalized enlargement and the sounds were of good quality. The blood pressure was 120/80 mm. Hg. The electrocardiogram showed the residual pattern of posterior myocardial infarction. Discharge was on the 71st hospital day. The patient has had an uneventful convalescence and has returned to his previous employment. Follow-up examinations to eight months since infarction have revealed no evidence of diminished reserve. The heart size has returned to normal by x-ray examination (fig. 2).

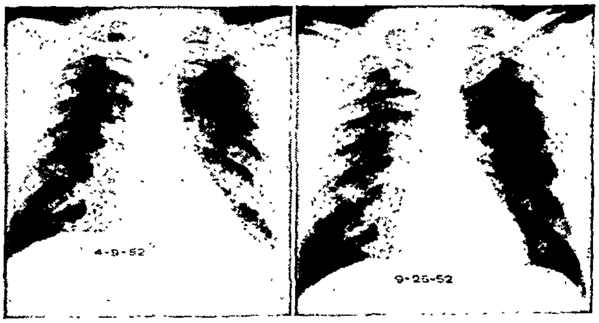


Fig. 2.—Six foot films showing the heart size 18 days and 6 months postoperatively.

COMMENT

Pericardial hemorrhage with tamponade in this case was undoubtedly related to the effects of anticoagulants. Although the prothrombin time later became considerably prolonged, hemopericardium occurred when the prothrombin levels were within the so-called therapeutic range and there was no evidence of toxic reaction to bishydroxycoumarin. Hemorrhage under these circumstances must be presumed to be a response that may occur when the normal clotting mechanism is disturbed in the presence of an inflammatory process. Hemopericardium with tamponade, which was considered to be due to the administration of anticoagulants, has been described in a case of nonspecific pericarditis.[2] This demonstrates that pericardial hemorrhage may result when anticoagulants are used in the presence of pericarditis of any type. While there is some difference of opinion,[6] most of the evidence in the literature agrees with our experience: serious complications of anticoagulant therapy are unusual when the necessary precautions are observed, and significant pericardial hemorrhage is relatively rare. Experimentally, surface hemorrhages were found to be no commoner in anticoagulant-treated myocardial infarction than in controls.[7] For these reasons, we do not believe that the possibility of this or other hemorrhagic complications should militate against the use, but should be regarded as a calculated risk in the anticoagulant treatment of myocardial infarction. A recent editorial has also expressed this viewpoint.[8]

Careful observation for manifestations of bleeding is, of course, essential and will usually prevent the occurrence of serious hemorrhagic complications. The earliest indication of pericardial hemorrhage, as pointed out by Goldstein and Wolff[4] and demonstrated in the case reported here, may be the occurrence of a pericardial friction rub when the prothrombin time is in the effective therapeutic range. This, with or without subsequent evidence of tamponade, warrants discontinuation of anticoagulants and the use of antihemorrhagic therapy. Tamponade may escape early recognition. It is evidenced by a rising venous pressure accompanying an increase in heart size, a small thready pulse, and narrowed pulse pressure, characteristically with a paradoxical quality to pulse and blood pressures. The heart sounds are not necessarily distant.

Differential diagnosis between cardiac dilatation with failure and cardiac tamponade may be difficult. Failure following myocardial infarction is most often predominantly left-sided as opposed to the almost exclusively right-sided effects of mechanical obstruction in acute tamponade. The electrocardiogram may be helpful in this differentiation when there is rapid development of low voltage complexes; however, the electrocardiogram as well as the x-ray findings may be equivocal.

Evidence of increasing tamponade is the indication for pericardial tapping. We believe that pericardiotomy, as performed in this case, is preferable to pericardiocentesis if differentiation from cardiac dilatation is uncertain because it permits direct visualization. The procedure can be performed under local anesthesia with the patient well sedated, receiving continuous oxygen. There is surprisingly little trauma when pericardiotomy is done by an experienced thoracic surgeon.

Of additional interest was the transient marked hyponatremia and chloremia and the hyperpotassemia. This appears to have been entirely due to the cardiac tamponade as there was a rapid and progressive return to normal electrolyte levels following pericardiotomy.

SUMMARY

A case is presented with pericardial hemorrhage and tamponade as a complication of anticoagulant therapy for acute myocardial infarction. Pericardiotomy was a lifesaving procedure.

815 Park Ave. (Dr. Rose).

6. Russek, H. I., and Zohman, B. L.: An Evaluation of Anticoagulant Therapy in the Treatment of Acute Myocardial Infarction, Am. Heart J. **43**: 871 (June) 1952.

7. Blumgart, H. L., and others: The Effect of Dicumarol on the Heart in Experimental Acute Coronary Occlusion, Am. Heart J. **36**: 13 (July) 1948.

8. Anderson, M. W.: Pericardial Hemorrhage as a Hazard of Anticoagulant Therapy for Heart Disease, editorial, Dis. Chest **22**: 360 (Sept.) 1952.

APLASTIC ANEMIA FOLLOWING CORTICOTROPIN THERAPY

George G. Snively, M.D.
Paul G. Hattersley, M.D.
and
Lewis E. Nolan, M.D., Sacramento, Calif.

Allergic reactions to corticotropin have been documented recently with increasing frequency. These reactions have been of varying degree and, although most reported reactions have been of relatively benign nature, instances of nearly fatal anaphylactic shock have been described by Segal[1] and Feinberg and associates.[2] Several series of less severe reactions have also been reported.[3] The incidence of sensitivity reactions to this material has been variously reported up to as high as 5%.[3b]

Since corticotropin has been clearly shown to act as an allergen, one might anticipate bone marrow depression to be a resultant phenomenon in a certain number of those persons who manifest hypersensitivity to the drug. This we believe to have occurred in the following case and feel that it should be reported in view of the obvious importance of early recognition of such a reaction.

REPORT OF CASE

A 21-year-old white man was admitted on Oct. 21, 1952, complaining of chronic diarrhea. Diarrhea had persisted for about three years; there were 5 to 10 stools daily, with occasional blood and mucus. There was moderate anorexia and marked weight loss. Two previous hospitalizations resulted in only transient, symptomatic improvement. The medical history was not significant except for a 17 day hospitalization at the age of 7 years for bloody diarrhea. There were no allergies or

---

From the departments of medicine and pathology, Sacramento County Hospital.

[1] Segal, M. S., and Herschfus, J. A.: Progress in Allergy: ACTH and Cortisone in the Management of the Hypersensitivities, With Particular Reference to Bronchial Asthma: A Review of Clinical and Laboratory Studies, Ann. Allergy **8**: 786, 1950.

[2] Feinberg, S. M.; Feinberg, A. R., and Bigg, E.: Allergy to Pituitary Corticotrophic Hormone, J. A. M. A. **147**: 40 (Sept. 1) 1951.

[3] (*a*) Proceedings of the First Clinical ACTH Conference, edited by J. R. Mote, Philadelphia, Blakiston Company, 1950. (*b*) Proceedings of the Second Clinical ACTH Conference, edited by J. R. Mote, Philadelphia, Blakiston Company, 1951, vol. 2, Therapeutics.

known food or drug sensitivities. On physical examination, this young man appeared sallow and listless. There were evidences of chronic weight loss. His blood pressure was 125/80 mm. Hg; his temperature, pulse, and respirations were normal. The entire physical examination was unremarkable except for the rectal examination, during which a roughened, nodular mucosa was felt. It was studded with elevated areas 1 to 10 mm. in diameter. Proctoscopic examination disclosed pseudopolyp formation on an ulcerated background of inflamed mucosa. Laboratory studies showed a normal urine; hemoglobin level, 9.5 gm. per 100 cc.; and white blood cell count, 4,800 per cubic millimeter. Several stools gave positive benzidine and guaiac reactions. Roentgen studies included a normal chest film and a roentgenogram after a barium enema that was reported to show loss of the haustral markings, with an unnaturally smooth appearance. There was shortening of the entire colon, with pseudopolyp formation throughout, and the terminal ileum seemed dilated but had a normal mucosal pattern. The appearance, to the radiologist, was characteristic of chronic ulcerative colitis, somewhat more advanced than on films taken two years previously.

In view of the long duration of the disease and the far advanced changes manifest in the colon, the patient was considered probably to be beyond adequate medical therapy, and a preparatory regimen for total colectomy was begun. Corticotropin was given by intravenous drip, 15 mg. daily, beginning on Nov. 21, 1952. His clinical progress was not satisfactory; he failed to gain weight, and the expected side-effects of the corticotropin did not develop. The administration of corticotropin was discontinued, and corticotropin gel was given in a dosage of 50 mg. twice daily, beginning on Nov. 26, 1952. Both the aqueous and gel forms of the drug were prepared from pork adrenal.[4] Two units of whole blood were given and administration of potassium chloride was begun on Dec. 5, 1952. Acne and a slight dependent edema developed on Dec. 7. Administration of carbacrylamine resins (Carbo-Resin), a sodium removing resin, was begun on Dec. 9, 1952, in an attempt to limit the retention of sodium. On Dec. 17, popliteal thrombophlebitis developed in the right leg; this was treated conservatively. At this time the hemoglobin level was 12.8 gm. per 100 cc.; hematocrit, 44%; and white blood cell count, 2,500 per cubic millimeter, with 79% neutrophils and 21% lymphocytes. Shortly thereafter marked generalized tenderness of all the muscles developed, and the temperature rose to 103 F. An electrocardiogram at this time showed a marked change from a previously normal tracing, with the development of a severe tachycardia and S-T segment depressions throughout all leads. On Dec. 23, the hemoglobin level was 14.5 gm.; white blood cell count, 1,300, with 75% neutrophils and 25% lymphocytes. On the following day, the hemoglobin level was 13.2 gm.; white blood cell count, 800, with 18% neutrophils and 82% lymphocytes. At this time, a sternal bone marrow aspiration was performed. The material showed almost no hematopoietic activity. The predominant cells were lymphocytes, and there were large areas of fat that were completely acellular. Many of the cells appeared to be degenerating granulocytes; the nuclei of some of these cells were pyknotic, while others showed nuclear lysis. Many showed cytoplasmic vacuolization. There were no normal granulopoietic or erythropoietic elements, and no megakaryocytes were found.

Corticotropin therapy was stopped and cortisone and antibiotic therapy begun. Oliguria developed; a fever continued; and the patient became disoriented. Rectal incontinence and bloody diarrhea developed. The administration of cortisone was discontinued after disorientation developed. On Dec. 25, 1952, 500 cc. of fresh blood was given, but the patient's condition rapidly grew worse and he died on Dec. 26. A review of the medications given to the patient prior to the sudden change in his clinical course disclosed that he had received only ferrous sulfate, a multivitamin preparation, potassium chloride, and the nonabsorbable carbacrylamine resins in addition to corticotropin.

An autopsy was begun approximately 45 minutes after death. On opening the abdominal cavity, the peritoneal surfaces were seen to be injected and reddened, and loops of bowel were slightly adherent, with a fibrinous exudate; no free fluid was found. The pleural spaces were normal. The pericardium and epicardium contained occasional, minute hemorrhagic areas. Numerous small, rubbery, dark red infarcts were found in both lungs, and a major branch of the right pulmonary artery was blocked by a red, mixed thrombus. The adrenals contained a markedly hypertrophied cortex 6 cm. thick; the medullas were normal in appearance. The serosa of the small bowel was injected and somewhat rough; the mucosa was normal; and the lumen was empty. The wall of the entire colon was markedly thickened and showed complete loss of haustration, extensive ulceration of the lining epithelium, and the formation of islands of pseudopolyps that were separated by dark red necrotic tissue. The vermiform appendix showed changes identical to those in the colon. The kidneys weighed 160 gm. each, and small necrotic abscess areas studded both the cortices and medullas on section. Examination of both sternal and rib marrow cavities showed a red, very dry surface from which no marrow could be expressed. The right leg was swollen, and there was induration over the course of the saphenous vein. There was a small area of ecchymosis, with induration in the left palm measuring 5 mm. in diameter. This region was incised and cultures made that disclosed a pure growth of beta hemolytic Staphylococcus aureus.

Microscopic findings included necrosis of the entire mucosa of the colon except for minute islands of epithelium and an exudative infiltration of all layers of the wall by polymorphs and lymphocytes. There was marked hypertrophy of the zona reticularis of the adrenal cortex. Areas of infarction and thrombosed blood vessels were found in the lung sections; chronic suppurative lymphadenitis was noted in the mesenteric lymph nodes; there was some infiltration of the pericardium by an inflammatory cellular exudate; and there were several minute areas of hemorrhage in the heart muscle. The kidneys showed microscopic evidence of the abscess areas noted grossly, and several similar areas were seen in the liver. Bone marrow sections showed diminution of the cellular components, most of which were lymphocytes with occasional plasma cells. No evidence of erythropoietic or myelopoietic activity was seen.

The pathological diagnoses were chronic ulcerative colitis; aplastic anemia; acute fibrinous peritonitis; pulmonary embolism, with bilateral pulmonary infarction; and pyemia, involving subcutaneous tissue, kidneys, liver, and pericardium.

SUMMARY AND CONCLUSIONS

A case of depression of bone marrow activity following corticotropin therapy with fatal termination due to overwhelming sepsis is presented. It represents, to our knowledge, the first instance of what we believe to be a probable untoward reaction to corticotropin. The experience points out a new potential hazard to be considered in the use of an ever more commonly administered therapeutic agent and demonstrates the need for careful hematological observation in patients so treated. As Evans and Rackemann [5] have commented, it is paradoxical that a drug that usually relieves allergic manifestations can itself act as an allergen; a somewhat similar situation, however, has been seen in the clinical use of antihistamines. Certainly the animal protein nature of corticotropin would make understandable such a potential for hypersensitivity development.

2315 Stockton Blvd. (17) (Dr. Snively).

---

[4] Fullgrabe, E. A.: Personnal communication to the authors.

[5] Evans, R. R., and Rackemann, F. M.: Progress in Internal Medicine: Allergy—Corticotropin and Cortisone: Review of the Literature from September, 1950, to January, 1952, A. M. A. Arch. Int. Med. 90:96 (July) 1952.

CLINICAL EXPERIENCE WITH TRANSFUSIONS OF PLATELETS SEPARATED FROM NORMAL BLOOD

Allen H. Minor, M.D.
and
Lee Burnett, M.S., New York

The development of a method for separating and concentrating platelets from normal blood[1] has facilitated the use of platelet transfusions for prevention or control of bleeding in thrombocytopenic purpura. Fifty-seven platelet concentrates, most of which were processed from five pints of blood each, have been prepared in the Lenox Hill Hospital's Laboratory for Experimental Cytology and given to 28 patients with thrombocytopenic purpura. To obtain an objective clinical evaluation of these transfusions, the observations and impressions of the 24 physicians attending these patients have been reviewed. This report is a summary of their experience.

CLINICAL MATERIAL

The 28 patients studied were divided, according to prognosis, into two groups of 14 each. Group A consisted of patients who might be expected to have a good prognosis, provided the hemorrhagic diathesis could be temporarily controlled. Ten patients in group A had idiopathic thrombocytopenic purpura, and four had thrombocytopenia secondary to severe but transient depression of the bone marrow, in which the number of megakaryocytes was usually normal or increased. Bone marrow depression in the latter four patients was caused by lipid histiocytosis of the kerasin type (Gaucher's disease) in one, septicemia in one, sulfisoxazole[2] in one, and triethylene melamine in one. Group B comprised patients in whom the ultimate prognosis was poor. Nine had aplastic anemia, three had acute leukemia, one had chronic granulocytic leukemia, and one had metastatic cancinoma involving the bone marrow; in these patients, the megakaryocytes were usually decreased in number or almost absent. The ages of the patients ranged from 2 to 69 years and were fairly evenly distributed throughout the seven decades.

Clinical evidence of bleeding was present in each patient at the time of the first platelet transfusion, despite attempts at control in many instances. Bleeding tended to be less severe in and therapy was less often given to patients of group A than to those of group B, as shown in the following tabulation:

Degree of bleeding	Group A	Group B
Slight	2	0
Moderate	6	4
Severe	6	10
Therapy		
Corticotropin or cortisone	3	4
Fresh blood	1	2
Corticotropin or cortisone plus fresh blood	5	8
None of the above	5	0

RESULTS

Effect on Hemostasis.—Platelet transfusions were given to prevent or control bleeding in 10 patients in group A and 13 patients in group B and to assist hemostasis at surgery in 4 patients in group A and 1 patient in group B. The desired effect was achieved either partially or completely in most patients in both groups, as shown in the following tabulation:

	Group A	Group B
Complete hemostasis	9	6
Partial hemostasis	3	4
No hemostasis	2	4

Thus, there were 17 patients who were not surgically treated and in whom a hemostatic effect occurred; the duration of this effect, as shown in the following tabulation, was usually greater in group A than in group B patients:

	Group A	Group B
Less than 1 day	0	3
1 or 2 days	3	4
3 or 4 days	1	1
More than 4 days	4	1

More than one platelet transfusion was given to 14 of the 28 patients. Transfusions were repeated less often in group A patients than in group B patients, and the time interval between transfusions tended to be greater in group A patients, as the following tabulation shows:

Number of transfusions	Group A	Group B
Two	3	5
Three	1	0
Four	1	1
Five	0	2
Six	0	1
Interval between transfusions		
1 day	1	4
2 days	2	10
3 days	3	2
More than 3 days	2	4

The hemostatic effectiveness of later transfusions as compared with that of the first appeared to be less in patients of group B than in those of group A. Group B included two patients in whom no effect was evident after either the initial or subsequent transfusions. The degree of hemostasis after repeated transfusions was considered less than after the first transfusion in one group A and five group B patients, the same in two group A and two group B patients, and greater in one group A patient; whether there was a change was not determined in one group A patient.

Use in Surgery.—A platelet transfusion was used prophylactically as a preoperative measure in nine patients. In five it was the only transfusion given, and in four severe bleeding had first been controlled by previous platelet therapy. Seven patients had splenectomy, one had nephrectomy, and one had hysterectomy. In all except one these transfusions were completely effective; at no time did the bleeding at operation cause the surgeon any concern. Platelet transfusion was ineffective in the patient in whom hysterectomy was done; she had chronic granulocytic leukemia and was in a terminal state. A spleen weighing 3,500 gm. was removed from the patient with Gaucher's disease; the procedure was described as "dry" and uneventful.

Transfusion Reactions.—Transfusion reactions occurred in six patients, three of each group. They ranged

---

From the Laboratory for Experimental Cytology, Lenox Hill Hospital.

This work was supported in part by grants from the New York City Cancer Committee, the Hematology Research Foundation, Chicago, and the Women's Council for Blood Research, Chicago.

[1] Minor, A. H., and Burnett, L.: Method for Separating and Concentrating Platelets from Normal Human Blood, Blood 7: 693, 1952.

[2] Geiger, J.: Thrombocytopenic Purpura Induced by Sulfisoxazole (Gantrisin) Therapy: Report of Case Controlled by Platelet Transfusion, J. A. M. A. 149: 1219 (July 26) 1952.

in severity from mild fever on the day after the transfusion was given to chilly sensations and a feeling of constriction in the head, chest, or low back shortly after the start of the transfusion, followed by a shaking chill and high fever. Only one patient had had a previous platelet transfusion, and two others had a history of reactions to previous blood transfusions; all three had a history of allergic manifestations. In the three other patients, none of these possible causes was operative; in one the transfusion was interrupted for a few minutes at the onset of the reaction and then was given more slowly, without further untoward effect. Platelet transfusions achieved their purpose completely in two of the six patients in whom there were reactions and partially in a third patient. In none of the 14 patients who died within two weeks after a platelet transfusion was the transfusion considered to be a contributing cause. Autopsy was performed on five, and no evidence of thrombosis or embolism was found.

Discontinuation of Transfusions.—Platelet transfusions usually were discontinued in patients of group A when a spontaneous or postsplenectomy remission occurred. One of the two deaths in this group occurred in a 2-year-old child as the result of fulminating septicemia, and the other resulted from a cerebral vascular accident that occurred 12 hours before platelets were given. In group B, most of the patients were in a terminal state, and the outlook was too grave in some cases to justify further transfusions; oftener, death supervened, despite improvement in the bleeding tendency. The following tabulation shows the reason for discontinuation of platelet administration in both groups:

	Group A	Group B
Purpose accomplished	4	0
Purpose accomplished, but prognosis poor	0	4
Splenectomy done	7	0
Patient died	2	7
Transfusion reaction occurred	1	1
Transfusions not effective	0	2

Evaluation.—The over-all evaluation of the effectiveness of transfusions of platelet concentrates, summarized in the tabulation below, indicates that they were frequently effective in both groups but were effective oftener in group A.

	Group A	Group B
Life-saving	5	0
Life-prolonging	2	4
Beneficial	6	5
Without effect	0	4
Somewhat harmful (transfusion reaction)	1	1

COMMENT

The patient with thrombocytopenia is threatened with death from possible internal hemorrhage. At any time, bleeding may become either so generalized or so sudden and massive as to preclude adequate replacement of blood, or a fatal cerebral vascular accident may occur. The potential danger varies with the severity of the bleeding and with the likelihood that it will cease spontaneously; these, in turn, depend on the pathogenetic mechanism responsible.

When critical bleeding is present or incipient, its prompt control is indicated. It is logical to attempt platelet replacement therapy in thrombocytopenia. Large numbers of platelets may be transfused by the use of platelet-rich polycythemic blood, fresh blood at frequent intervals, or platelet concentrates derived from several pints of normal blood. Improvement in hemorrhagic manifestations usually follows the transfusion of polycythemic blood[3]; such blood may not, however, be available when needed, and some physicians hesitate to use it. Fresh blood may have a hemostatic effect[4]; however, its use in large volume is limited by the functional capacity of a heart possibly already weakened by myocardial hemorrhages; in some instances, even the direct transfusion of 1,500 ml. of fresh blood is of little benefit.[5] Transfusion of platelets separated from normal blood and concentrated in a small volume of physiological fluid provides an alternative method for producing hemostasis.[6]

The composite experience reported here indicates that platelet concentrates are useful in the symptomatic control of thrombocytopenic purpura, regardless of the underlying cause. They have been of most value in cases in which critical bleeding was present or its occurrence was threatened but the ultimate prognosis was good. They have been used as supportive treatment for patients with severe but temporary depression of bone marrow function, and their use has permitted safe splenectomy in patients with idiopathic thrombocytopenic purpura with severe bleeding. In cases in which the marrow was aplastic or extensively invaded by leukemic cells, however, the usefulness of these transfusions has been limited by the necessity of giving several each week. Repeated transfusions have succeeded in prolonging life, but large supplies of blood have been required, and there has often been a progressive decrease in hemostatic effectiveness, presumably because of the development of antibodies to the transfused platelets.[7] Transfusion reactions occasionally have been encountered; the possibility of such a reaction does not seem to justify withholding platelet transfusion therapy when it is indicated.

The mechanism by which transfused platelets exert a hemostatic effect is unknown. It has been observed that large numbers of transfused platelets disappear promptly from the circulation; the improvement in the bleeding tendency generally persists, however, for many hours to several days after the platelet count has returned to its pretransfusion level.[8] This would suggest that the vascular defect that causes the clinical manifestations of purpura must be corrected, temporarily, either by intact platelets withdrawn from the circulation or by products elaborated by them or resulting from their disintegration.

---

[3] Stefanini, M., and others: Studies on Platelets: 2. Effect of Transfusion of Platelet-Rich Polycythemic Blood on Platelets and Hemostatic Function in "Idiopathic" and "Secondary" Thrombocytopenic Purpura, Blood **7:** 53, 1952.

[4] Duke, W. W.: Relation of Blood Platelets to Hemorrhagic Disease, J. A. M. A. **55:** 1185 (Oct. 1) 1910.

[5] Lawrence, J. S.; Valentine, W. N., and Adams, W. S.: Thrombocytopenic Purpura: Failure of Direct Blood Transfusion to Raise Platelet Level, J Lab. & Clin. Med. **33:** 1077, 1948.

[6] (*a*) Minor, A. H., and Burnett, L.: Separation, Concentration and Transfusion of Platelets from Normal Human Blood, read before the 37th Annual Meeting of the American Society for Experimental Pathology, New York, April 14-18, 1952; abstracted, Fed. Proc. **11:** 422, 1952. (*b*) van Creveld, S.; Paulssen, M. M. P., and Bartels, H. L. J. M.: Effect van *intraveneuze inspuiting van suspensies van bloodplaatjes bij ziektetoestanden, gekenmerkt door thrombopenie en thrombopathie,* Maandschr. *kindergeneesk.* **20:** 249, 1952.

[7] Sprague, C. C.; Harrington, W. J.; Lange, R. D., and Shapleigh, J. B.: Platelet Transfusions and the Pathogenesis of Idiopathic Thrombocytopenic Purpura, J. A. M. A. **150:** 1193 (Nov. 22) 1952.

[8] Minor and Burnett.[6a] Stefanini.[3]

SUMMARY

Clinical experience with 57 transfusions of platelet concentrates in 28 patients with thrombocytopenic purpura is reviewed. These concentrates were prepared from normal blood and were given to control active bleeding or to assist hemostasis at surgery. Their use usually was followed by a beneficial effect, which generally lasted from one to several days. Platelet transfusions were most useful in cases of idiopathic thrombocytopenic purpura as a prophylactic measure prior to splenectomy and as supportive therapy in cases of thrombocytopenia secondary to severe but transient depression of the bone marrow.

Park and Lexington Ave. 76th to 77th St. (21) (Dr. Minor).

TRAUMATIC AUTOPLASTIC IMPLANTS OF SPLENIC TISSUE

C. Hartley Berry, M.D.
and
George L. Erdman, M.D., Summit, N. J.

Occasional reports have appeared over the last 40 or 50 years describing multiple, purplish-red nodules of varying size scattered throughout the abdominal cavity in persons who almost invariably had a history of splenic trauma requiring splenectomy. These nodules grossly resembled splenules and were found, on microscopic examination, to be composed of splenic tissue. Since 1939, when Buchbinder and Lipkoff[1] first suggested its use, the term "splenosis" has been employed to refer to this condition and to imply that the nodules are implants of splenic fragments.

There has never been any real doubt that these nodules are splenic tissue, but their pathogenesis has not been entirely settled. Some of the earlier investigators held that these spleen-like nodules developed after splenectomy as compensatory enlargements of persistent splenic anlagen of phylogenetic origin, since certain of the lower animals normally have splenic tissue distributed throughout the intestine instead of having a single organ. Others suggested the possibility of a compensatory hyperplasia of accessory spleens.

This theory of compensatory hypertrophy is partially discounted by the fact that autoplastic transplants of spleen readily survive in various experimental animals. Kreuter[2] and later, Putschar[3] both demonstrated the ease with which fragments of splenic pulp become engrafted when seeded into the peritoneal cavity of an animal. Jarcho and Andersen,[4] while conceding that further studies of splenosis are necessary, state: "Even now it is scarcely possible to avoid the conclusion that the intraperitoneal nodules found after splenectomy in cases of splenic rupture are due to the scattering of particles of pulp throughout the peritoneal cavity." We accept this as a reasonable conclusion.

In view of the relative frequency with which traumatic rupture of the spleen occurs, it is strange that splenosis is so rarely encountered. Waugh,[5] reporting a case in 1946, reviewed the European and American literature and found only 16 cases with previous history of splenic trauma. To these can be added one reported by Bunch and Spivey[6] in 1946. In 1947, Stobie[7] published the first report of splenosis following splenectomy for nontraumatic reasons (thrombopenic purpura). Splenosis was discovered at a second operation following the return of purpuric manifestations after a period of remission. Although there was no antecedent history of trauma in this case, there was probable spillage of splenic pulp at the time of the splenectomy, since the report concluded with an admonition that rupture of the spleen be avoided during the performing of splenectomies. In 1950 Sampaio[8] reported another case of splenosis following traumatic rupture. Since the number of reported cases is extremely small, it seems worth while to report an additional case of splenosis with the hope that others will be stimulated to report similar cases. In this way a more accurate estimate of the actual incidence of splenosis may be obtained.

REPORT OF A CASE

In March, 1949, a 12-year-old white boy was subjected to a splenectomy because of a traumatic rupture of the spleen. Convalescence was uneventful. Approximately one year later an appendectomy was performed. Nothing unusual was noted in the area of the peritoneal cavity exposed by the laparotomy. The pathological diagnosis at that time was lymphoid hyperplasia of the appendix. In March, 1951, almost two years after the splenectomy, a third laparotomy was necessary for the relief of symptoms of obstruction in the gastrointestinal tract. The onset of symptoms at first suggested a mild upper respiratory infection such as was prevalent in the community at the time; but when the patient was examined by one of us, the clinical findings were those of partial bowel obstruction. The child was admitted to the hospital for study and definitive care. Roentgenograms revealed evidence of intestinal obstruction in the distal jejunum or proximal ileum. The exact nature of the lesion was not apparent from the roentgenograms, but, from the history of the case, it seemed most probable that postoperative adhesions were causing the obstructive symptoms. At operation, as was expected, an adhesive band causing partial obstruction was found. This band, which was approximately 5 cm. long, was attached to the antemesenteric border of the jejunum 12.5 cm. below the ligament of Treitz and reached to a more distal segment of the jejunum, where it was adherent to the mesenteric border. Loosely caught between this band and the jejunum was a loop of proximal ileum. The serosal surface was engorged, indicating some circulatory embarrassment, but on resection of the band the bowel quickly regained its normal color. In addition to the band, a number of small, purplish-red nodules were noted. The largest nodule, about 5 mm. in diameter, was adhered to and partly incorporated in the upper end of the obstructing band. Smaller nodules scattered in the same general area were attached to the serosa

---

From the departments of surgery and pathology, Overlook Hospital.

[1] Buchbinder, J. H., and Lipkoff, C. J.: Splenosis: Multiple Peritoneal Splenic Implants Following Abdominal Injury: Report of Case and Review of Literature, Surgery **6**: 927-934 (Dec.) 1939.

[2] Kreuter: Experimentelle Untersuchungen über die Entstehung der sogenannten Nebenmilzen, insbesondere nach Milzverletzungen, Bietr. z. klin. Chir., Tübing **118**: 76-94, 1919.

[3] Putschar, W.: Freie Autotransplantation von Milzgewebe, Verhandl. d. deutsch. path. Gesellsch. **26**: 259-265, 1931.

[4] Jarcho, S., and Andersen, D. H.: Traumatic Autotransplantation of Splenic Tissue, Am. J. Path. **15**: 527-546 (Sept.) 1939.

[5] Waugh, R. L.: Multiple Peritoneal Autotransplantation of Splenic Tissue Following Traumatic Rupture of the Spleen: Report of Case in Adult, New England J. Med. **234**: 621-625 (May 9) 1946.

[6] Bunch, G. H., and Spivey, C. G.: Splenosis: Intraperitoneal Transplants Following Traumatic Rupture of the Spleen, Am. J. Surg. **71**: 542-545 (April) 1946.

[7] Stobie, G. H.: Splenosis, Canad. M. A. J. **56**: 374-377 (April) 1947.

[8] Sampaio, P.: Autotransplante de tecido esplenico da cavidade peritoneal, Rev. brasil. cir. **19**: 733-737 (July) 1950.

of adjacent loops of bowel, to the mesentery, and to the omentum. Several of the larger nodes were excised for microscopic sections. When the nodules were seen at operation, it did not occur to us that they were splenic implants; it was only after microscopic examination that these lesions were identified. After operation the patient recovered rapidly and has remained well.

COMMENT

There are no specific symptoms in splenosis. The diagnosis of the condition appears never to have been made preoperatively; the usual diagnosis is chronic appendicitis or intestinal adhesions. Splenosis, per se, is of no great pathological importance except in hematological conditions requiring complete removal of splenic tissue. Adhesions resulting from the original trauma or from subsequent surgery are the chief concern, as seen in this case of partial bowel obstruction. It does seem, however, that a tentative diagnosis of splenosis with adhesions could be made in patients who have previously undergone splenectomy and who present vague abdominal symptoms at a subsequent time. At least, the surgeon should be able to recognize the condition when it is found at operation, which we failed to do. In a woman, splenosis could be mistaken grossly for endometriosis, but the clinical history and the rhythmical exacerbation of symptoms in the latter condition would be determining factors in a differential diagnosis.

In traumatic cases in which splenectomy is required, a knowledge of the probable pathogenesis of splenosis should suggest to the surgeon a thorough search for and removal of even the smallest fragments of splenic pulp. As far as is possible, all free blood, which may contain splenic pulp cells, should be sponged from the peritoneal cavity.

129 Summit Ave. (Dr. Berry).

Accidents—The Preschool Child's Greatest Hazard.—Accidents constitute the greatest single threat to the lives of children 1 to 4 years of age. About 5,500 deaths, or one quarter of the total that occur annually among preschool children result from mishaps of one kind or another. . . . Although the relative importance of accidents in the total mortality picture increases during the early years of life, the death rate from accidental injury actually decreases from age 1 through 4. This simply means that during the preschool ages the chances of death from accidental injury decrease less rapidly than the chances of death from disease. . . . About two fifths of the deaths from the various types of accidents among insured preschool children in the United States occur in the home. . . . It is apparent, therefore, that the success of the safety program for youngsters will depend in large measure on the effort that parents make to reduce the hazards in the home and keep constant watch over young children. The physician, and particularly the pediatrician, also has an important role to play in the child safety program. As a family counselor he has the opportunity and the responsibility to advise on accident prevention. The physician is familiar with the child's growth and development, and can therefore enlighten parents on hazards against which reasonable precautions should be taken at various stages of development. A program of safety education begun in the preschool years by an interested physician and receptive parents can be the foundation for safe practices which may last throughout life.—Accidents—The Preschool Child's Greatest Hazard, *Statistical Bulletin*, Metropolitan Life Insurance Company, May, 1953.

MANAGEMENT OF GASTROINTESTINAL HEMORRHAGE OF UNDETERMINED ORIGIN

VALUE OF IMMEDIATE EXPLORATORY LAPAROTOMY DURING ACTIVE BLEEDING

H. L. Bockus, M.D.
L. K. Ferguson, M.D.
C. Thompson, M.D.
and
J. L. A. Roth, M.D., Philadelphia

This case is reported to illustrate a principle that has proved of value in the management of massive hemorrhage from the gastrointestinal tract in cases in which the cause of bleeding cannot be discovered by exhaustive studies. In such instances, we believe that exploratory laparotomy should be looked on as a diagnostic procedure, but, to discover the bleeding site, the operation must be performed during the episode of active bleeding. The frequency with which the origin of manifest gastrointestinal hemorrhage is not revealed by meticulous and comprehensive studies varies considerably in reported series (from 2 to 30%). The explanation for this may lie in one or more of the following factors: (1) an inaccurate or incomplete history; (2) overlooking a significant physical finding; (3) incomplete or inaccurate laboratory observations on liver function, blood dyscrasias, and bleeding mechanisms; (4) inadequately performed roentgen studies of the gastrointestinal tract, e. g., failure to carefully study the lower esophagus, lack of utilization of special techniques for the demonstration of hiatus hernia, lack of use of compression films and special projections in the study of the stomach or duodenum, presence of nonopaque residue or blood in an ulcer crater, inadequate study of the mesenteric small intestine without resort to compression, or improper preparation of the colon for barium enema or failure to obtain postevacuation or double contrast films; (5) failure to consider unusual causes of hemorrhage and failure to direct investigation along the lines necessary to disclose such causes; (6) failure to employ "early" roentgen study, gastroscopy, or esophagoscopy in selected cases of recurrent bleeding (the "early" use of the Einhorn string test may help in determining whether the level of bleeding is between the esophagus and the ligament of Treitz).

When the bleeding is characterized by hematemesis, the bleeding point may be fairly well localized to the upper gastrointestinal tract between the esophagus and upper jejunum. The bleeding that appears only as melena (tarry or red stool) is more difficult to localize, since it may arise from a lesion anywhere from the esophagus to the rectum. One may attempt to judge the level of the bleeding point by the color of the blood in the stool, but the color change from bright red to dark cherry red to black varies not only with the level of the bleeding point but also with the rapidity of bleeding and the speed of intestinal transport. Hence, stool color is not always a reliable guide and may be misleading.

From the departments of gastroenterology (Drs. Bockus and Roth) and surgery (Dr. Ferguson), Graduate Hospital of the University of Pennsylvania, and the Department of Gastroenterology (Dr. Thompson), Hahnemann Medical College and Hospital.

Despite the use of great care in performing comprehensive studies, there are a number of patients (about 10 to 15%) in whom no cause for hemorrhage can be found. In such instances, we believe that exploratory laparotomy should be looked on as a diagnostic procedure. The more frequently abdominal exploration is employed, the more likely is it that superficial ulceration or erosive gastritis, small bowel tumors, or unusual vascular or other rare lesions will be encountered, thus reducing the incidence of undetermined causes.

The bleeding may stop during the period taken up by the study of the patient, or frequently the patient is first seen during a free interval. Operation at this time, without a definitive diagnosis, often results in an unproductive exploration. Even with careful inspection and palpation of every inch of small and large intestine, nothing may be found, and there is nothing to guide the surgeon to the site of the lesion. If bleeding has stopped, and the cause has not been discovered, it is advisable that exploration be deferred, because an unfruitful exploration often makes a subsequent procedure more difficult. In selected patients in whom available objective studies have failed to disclose the cause of bleeding, it has been found more productive to do an exploration as soon as possible after a recurrence of bleeding becomes manifest and the patient has been brought out of shock and the blood volume replaced by immediate transfusion. Exploration should be accomplished during active bleeding, without the delay of repeated studies. The appearance of the upper level of blood in the intestinal tract may mark the site of the bleeding. A delay of only a few hours may result in a loss of this advantage, since the bleeding may temporarily stop, and peristalsis may rapidly clear the intestine of its blood content. To fulfill the rigid criteria for management of such cases, the patient is advised to come to the hospital immediately, with the first sign of blood loss. The surgical service should have a record of the possible admission of such a patient in order that preparation for immediate operation may be instituted at once. The following case report is illustrative of such an experience.

REPORT OF A CASE

A. L., a 75-year-old retired businessman, was admitted to the Graduate Hospital on May 5, 1951, for the study of recurrent episodes of rectal bleeding and melena. Bright red, blood-streaked, formed stools were passed periodically for one year prior to November, 1949. At that time, he began to have severe rectal bleeding, with the passage of several tablespoonsful of bright red blood and momentary loss of consciousness. He was hospitalized elsewhere and required a single transfusion of whole blood. For three or four days thereafter, he passed tarry stools. The sequence of bright red rectal bleeding followed by melena was repeated in August, 1950, February, 1951, March, 1951, and in early April, 1951. In the interval between these severer bleeding episodes, the stools were normal in character and consistency, except for streaking of bright red blood occasionally, attributed to hemorrhoids. Constipation with the passage of scybalous stools and increased necessity for straining usually preceded the more vigorous bleeding for several days. The patient was conscious of gaseousness and borborygmi for several hours as a forewarning of the impending rectal hemorrhages. He denied having abdominal pain of any kind, rectal tenesmus, or abdominal distension with any of these attacks. His appetite remained good and his food intake adequate. Vigor had been maintained, and the patient felt well between the episodes of bleeding. He estimated he had had a gradual weight loss of 8 lb. (3.6 kg.) during the 18 months following his first hemorrhage. Other bleeding tendencies were denied, and the family history was negative for blood dyscrasias. A systemic review was noncontributory.

The patient had been hospitalized again in February, 1951, and required five blood transfusions (2,500 cc.) to restore the red cell count to normal. The hemorrhage in March, 1951, was associated for the first time with nausea but not with vomiting or hematemesis. During the various hospital admissions elsewhere, the patient was studied repeatedly by barium enema and barium meal studies, sigmoidoscopy, and laboratory studies for bleeding dyscrasias, but no cause for bleeding was discovered. After an inconclusive exhaustive investigation in March, 1951, during a quiescent interval when there was no evidence of active bleeding, an exploratory laparotomy had been performed, but the site of previous hemorrhages was not revealed.

The episode of rectal bleeding that culminated in the patient's transfer to the Graduate Hospital began on April 25, 1951, and was different from previous attacks in that melena persisted longer (8 days). Four blood transfusions were administered at another institution prior to the transfer.

The patient appeared younger than his stated age; he was undernourished and of asthenic habitus. The skin was clear except for scattered senile keratoses; no significant accessible lymphadenopathy was encountered. There were no petechiae or ecchymoses, and the mucous membranes revealed no evidence of avitaminoses. Chest expansion and excursion were of good amplitude and equal bilaterally, and the lungs were clear to percussion and auscultation. The heart was not enlarged to percussion; a grade 2 systolic murmur was audible. Blood pressure was 114/60 mm. Hg and the pulse rate 88 beats per minute, with a regular sinus rhythm. The abdomen was scaphoid in contour, and the scar from the previous laparotomy was well healed. There was no abdominal distention, and the bowel sounds were of normal quality and frequency. The liver, kidneys, and spleen were not palpable. Rectal examination disclosed external hemorrhoidal tags, and the prostate was firm, symmetrical, and smooth and only slightly enlarged. No Blumer's shelf was encountered, and the ampulla was full of soft brown feces, which were 4+ for occult blood (Gregersen). Results of sigmoidoscopy were normal. The initial red blood cell count was 3,770,000 per cubic millimeter, with 9.5 gm. of hemoglobin per 100 cc.; the white blood cell count was 5,600 per cubic millimeter, with a normal differential count; the platelet count was 540,000 per cubic millimeter; the coagulation time was 2 minutes, the bleeding time 3 minutes, and the prothrombin time 17 seconds (85%). Results of liver flocculation tests were normal; the serum bilirubin level was 0.2 mg. per 100 cc., and sulfobromophthalein (Bromsulphalein) sodium retention was 0.8% (5 mg. per kilogram of body weight in 45 minutes). Results of routine urinalysis were essentially normal; the urine had a specific gravity of 1.014. The stools were dark brown in color and gave a 4+ reaction for occult blood for eight days following admission. A Rumpel-Leede capillary fragility test revealed 17 petechiae in the antecubital space (2.5 cm. circular area). X-ray studies after a barium enema showed several small diverticula in the proximal sigmoid colon but otherwise revealed no abnormality. A satisfactory mucosal pattern was obtained, especially in the cecum and ascending colon. The barium meal study revealed a small sliding hiatal hernia but no evidence of peptic ulcer disease, tumor, or Meckel's diverticulum. The mesenteric small intestine appeared normal. At a time when there was no longer evidence of bleeding into the gastrointestinal tract, an Einhorn string test was negative.

The failure of these and previous studies elsewhere to disclose the site of gastrointestinal bleeding was discussed with the patient, and the recommendation was made that, if bleeding should recur, he be hospitalized immediately, given transfusions to replace blood loss, and, without further study, be subjected to exploratory laparotomy during active bleeding. He was discharged on a bland, low residue diet, with prune juice to aid bowel movement. One week following discharge from the hospital, on May 27, 1951, he had a recurrence of rectal bleeding several minutes after passing a normal stool.

The second bowel movement consisted of bright red blood and dark blood clots. He was hospitalized immediately, according to previous arrangements. On admission, examination revealed no additional findings, except for the presence of dark red, bloody material in the rectum. Vital signs were essentially unchanged.

The patient was taken immediately to the operating room, where one of us (L. K. F.) explored the abdomen to search for the bleeding site. The peritoneal cavity, which had been opened previously, showed the presence of multiple adhesions, and the small bowel loops were adherent to each other. It was necessary to free the entire mesenteric small bowel from adhesions to exclude the presence of a lesion. The stomach and duodenum appeared normal, and no lesion could be palpated. The appearance of the small intestine and colon presented a striking contrast because of a bluish discoloration extending from the cecum down to the rectum, attributed to blood within the lumen of the colon. A similar but less definite discoloration was noted in the most terminal segment of the ileum.

The distal ileum was opened to determine whether blood was coming from above or from the terminal ileum. By aspiration proximally, normal, bile-colored fluid coming down from above was recovered, whereas when the aspirator was inserted distally some blood was obtained. No lesion could be palpated on insertion of a finger into the terminal ileum. The cecum was opened, and a considerable amount of old blood was encountered, which was aspirated. The cecum was turned inside out for a close inspection. The ileocecal valve appeared normal, and no bleeding point was visualized. In the cecum there was a dark red, rosebud-like lesion, measuring 3 mm. in diameter, resembling an hemangioma with a white fleck in the center. Vigorous pulsatile bleeding occurred after the lesion was wiped with a sponge. Two pulsating vessels were present at this area. About 3 cm. away, along the ascending colon, were two similar lesions, and two small pedunculated, nonbleeding polyps (2 and 4 mm.) were found in the hepatic flexure area. A right hemicolectomy was performed with ileotransverse colostomy, using an end-to-end anastomosis.

The surgical specimen revealed a small, dark red lesion in the cecum, having the appearance of a "blood blister" and measuring 2 mm. in diameter. Two lesions similar in size and appearance were present in the ascending colon, as well as two small pedunculated polyps, measuring 2 to 4 mm. in diameter. Histologically, the latter were benign adenomatous polyps. Microscopic section of the hemorrhagic lesions revealed a minute hematoma covered by hemorrhagic mucosa, the extravasation of blood being limited to the submucosa. Multiple sections failed to conclusively demonstrate a hemangioma or arteriovenous aneurysm, and the lesion was interpreted as submucous telangiectasia. Nineteen months have elapsed since the operation was performed. There have been no further bleeding episodes.

COMMENT AND CONCLUSIONS

It is inconceivable that any type of diagnostic study would disclose a lesion of the type in this case. Careful exploration of the entire alimentary tract had been performed by a capable surgeon previously but at a time when hemorrhage was not occurring. A guide to the possible site of bleeding was afforded at the time of our exploration by visualization of the upper limit of discoloration of the bowel by bloody content. Nothing could be palpated. It was only when the cecal area was turned inside out that the small "spurter" was seen. Performance of an operation during a bleeding episode is no longer attended by great hazard. When all diagnostic aids have failed to disclose the cause of massive bleeding episodes, operation during the course of the next episode of massive bleeding should be considered as the procedure of choice.

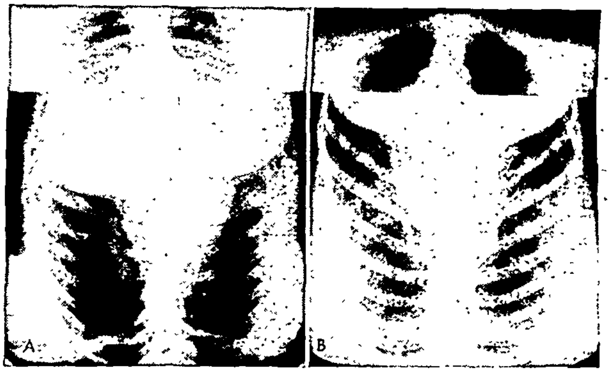
19th and Lombard St. (46) (Dr. Roth).

TECHNICAL MODIFICATION OF ROUTINE CHEST RADIOGRAPHS

Robert W. Currie, M.D., Marion, Ind.

The average roentgen image of the thorax does not completely fill a 14 by 17 in. radiograph. Approximately 4 in. of the film is noninforming in the subdiaphragmatic and superclavicular areas. Many European radiologists use 14 by 14 in. radiographs for chest work. I have copied their technique, but use a standard 14 by 17 in. film and cassette instead. Survey sagittal chest radiographs have three important blind spots: the posterior subdiaphragmatic area, the retrocardiac area, and the apical areas hidden by the clavicles and first ribs. Lateral radiographs of the chest will visualize the first two, but it takes a lordotic view to adequately visualize the apical lung fields in certain body builds.

Study of lordotic radiographs of the chest show that their value is confined mostly to the upper one-fifth of the thoracic cage, and that below this the overlap of lung markings obscure radiographic detail. By the use of sheet lead shielding and special attention to patient positioning, both the conventional sagittal radiograph and the apical lordotic view can be obtained on the same 14 by 17 in. radiograph. The marginal 3 or 4 in. not utilized by the thoracic shadow is sufficient to record the apical lordotic image (see *A* of the figure). A piece of masking lead is cut to fit the front of the cassette holder so that the lower 4 in. of the radiograph is not exposed. With this lead in place the conventional sagittal radiograph is taken. The cassette is then turned end for end (or upside down), and a larger piece of masking lead to cover the initially exposed film area (14 by 13 in.) is placed in the front of the cassette holder. The patient is then placed for the lordotic view in the anterior posterior position with the dorsal spine hyperextended, the shoulders rolled forward, and the feet about 12 to 18 in. away from the base of the cassette holder.[1] If the line formed by the superior margin of the clavicle is on a level with the upper film margin, the positioning is usually satisfactory.



Radiographs of the chest, utilizing sheet lead shielding and careful patient positioning. *A*, image showing both the conventional sagittal and the apical lordotic view. *B*, image showing an apical parenchymal density not usually visible.

---

[1] Sante, L.: Manual of Roentgenological Technique, ed. 13, Ann Arbor, Mich., Edwards Brothers, Inc., 1946, pp. 191 and 192.

Close scrutiny of a large number of sagittal chest radiographs emphasizes that focal pathology can be obscured by the bony overlap of clavicle and first rib. Patton and Badger[2] call the lordotic view a refinement of radiological technique and nicely demonstrate its value in their discussion of pulmonary tuberculosis. The figure (*B*) also demonstrates an apical parenchymal density not visible in the routine sagittal position. Certainly the added time and effort needed to routinely record the apical lordotic view is justified to eliminate this blind spot on survey chest radiographs.

---

[2] Patton, W. E., and Badger, T. L.: Symposium on Specific Methods of Treatment: The Modern Treatment of Pulmonary Tuberculosis, M. Clin. North America 36: 1253 (Sept.) 1952.

EASY REMOVAL OF SKIN SUTURES

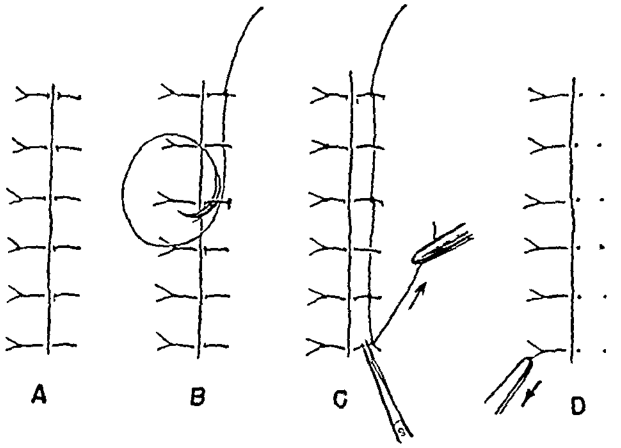
Mandel Weinstein, M.D.
and
Morton Roberts, M.D., Jackson Heights, N. Y.

The removal of skin sutures may be as much of an ordeal for the physician as for the patient. In this modern era of almost unbelievable surgical techniques and skills, one still hears a lay person remark that "the removal of my sutures was a more painful experience than the operation itself." We wish to describe a "suture lift" that will facilitate the removal of skin sutures. This "suture lift" consists of a separate piece of nonabsorbable surgical suture threated under all of the stitches after their insertion and fixed to some of them. Traction upward on one end of this thread permits easy visualization of all the skin sutures for incision and extraction.

The removal of ordinary over-and-over interrupted or continuous skin sutures presents no serious problem since each loop is usually exposed enough to be cut with the tips of scissors. Difficulty is encountered, however, in removing such sutures if they incorporate very small bites of skin or are made of extremely fine material. As the more popular method of skin approximation is the Stewart or vertical mattress suture, the "suture lift" has been devised to remove that type. This method of wound closure is considered more effective because it allows more precise approximation of the skin edges, a securer closure, the elimination of underlying dead space, and a better cosmetic result. A properly inserted Stewart suture is made with a spear-pointed needle and consists of two parts. First, the operator stitches the skin edges intradermally as close to the incision as possible. Then, by reversing the direction of the needle and by moving a distance from the wound edges, the needle is passed through the skin and subcutaneous tissues of both sides. Finally, the ends of the suture are tied, resulting in a loop on one side of the wound and a knot on the other.

The method usually advised for removing Stewart sutures is to insert a scissors blade under the loop, cut the suture, and remove it by pulling the knot or free ends on the knot side of the incision. The normal healing processes of operative wounds, however, often make this procedure very difficult. Postoperative edema and swelling may cause the suture to be so depressed and buried in the skin that delivering it for severance may be almost impossible. If very small sutures are fashioned or if the suture material is very fine, the procedure may be extremely difficult and very painful. Should the incision be placed between skin folds or crease lines, as in saphenous vein ligations in the subinguinal region, the difficulties that may be encountered are obvious. As a matter of fact, the idea of a "suture lift" was first conceived when an attempt was being made to remove almost completely buried nonabsorbable sutures from an obese woman who had had an inguinal incision for a varicose vein operation.

The "suture lift" is applied in the following manner. After all the Stewart sutures have been inserted, a small, curved round needle is threaded with 3-0 nonabsorbable surgical suture and passed around the loop of the first stitch and the thread tied. The free end is cut approximately 2 in. (5.08 cm.) long. The thread is then passed under the loop of the second stitch and around the loop of the third stitch. This procedure is repeated so that every other stitch is fixed to the "suture lift" by an extra turn of the thread, as indicated (see figure). The procedure is terminated by locking the thread to the last suture; thus, it is fixed at both ends.



A, appearance of the wound with the usual Stewart sutures in place; *B*, insertion of the "suture lift"; *C*, cutting of the loops of the sutures made easy by upward traction on the "suture lift"; and *D*, removal of cut sutures.

After a week, removal of the Stewart sutures is easily accomplished by grasping one end of the "suture lift," maintaining steady traction away from the skin surfaces, and cutting each loop as it is lifted out of its bed. Loops of fine thread that have become deeply buried in the skin may be raised easily and cut. After cutting all the loops, it is a simple matter to remove the sutures quickly by pulling the knotted ends on the opposite side of the incision. The appreciation expressed by the patient for the quick and relatively painless removal of the sutures will more than repay the surgeon for the additional minute or two consumed in the insertion of the "suture lift."

75-17 41st Ave. (Dr. Weinstein).

COUNCIL ON PHARMACY AND CHEMISTRY

REPORT TO THE COUNCIL

The Council has authorized publication of the following report from the Committee on Pesticides.

R. T. Stormont, M.D., *Secretary.*

Initial reports of success in the control of flying insects in enclosed spaces led to the introduction of a multitude of electric and other types of devices employing heat for the release of insecticides into the atmosphere of homes and other places of human occupancy. Although many of them were poorly constructed, they were promoted for nearly every conceivable domestic insect control problem. Medical concern for the safety of these contrivances, especially for home use, prompted the Committee on Pesticides to publish a report, "The Health Hazards of Electric Vaporizing Devices for Insecticides" (J. A. M. A. 149:367 [May 24] 1952). The Committee's report furnished a compelling argument for the need of caution and control in the use of vaporizing equipment. Since the publication of this statement, new devices and new regulations have appeared and new cases of injury have been reported. The Committee feels that these and other changes that have occurred warrant a supplementary report on the health problems of this type of insect control.

Bernard E. Conley, *Secretary*
Committee on Pesticides.

HEALTH PROBLEMS OF VAPORIZING AND FUMIGATING DEVICES FOR INSECTICIDES

A SUPPLEMENTARY REPORT

Dispensing insecticides into the atmosphere of buildings and other enclosed spaces principally for the control of flying insects is being exploited in a variety of ways. Among the methods being critically examined for their health hazards are those concerned with heating, igniting, or otherwise evolving vapors or fumes of chlorinated hydrocarbon insecticides. Two types of applications are currently employed: the slow, continuous dispersion of insecticide vapor in occupied areas other than homes and food handling establishments, and, conversely, the rapid release of insecticidal fumes in temporarily unoccupied areas at intervals not to exceed every other week. Applicators utilized for these operations are now commonly referred to as insecticide vaporizing and fumigating devices, respectively.

VAPORIZER REGULATIONS

Official acceptance of the methods embodied in these applications have undergone considerable modification in the last two years. Recommendations covering the chemicals used in these devices, their construction, and conditions under which continuous-type thermal generators for insecticides could be used were issued in September, 1951, by the Interdepartmental Committee on Pest Control, a group representing federal agencies interested in pest control. At that time, it was recommended that only dichlorodiphenyltrichloroethane (DDT), gamma benzene hexachloride (lindane), or their mixtures should be used at a rate not to exceed 1 gm. to 15,000 cu. ft. in 24 hours. The use of units with protective features to indicate times of operation and to prevent excessive output, plus instructions for installation in positions above head level and away from situations favoring food contamination, were outlined. Warning also was given against use in homes and sleeping quarters or in other places where continuous prolonged exposure was possible.

A subsequent report by the Committee on Pesticides gave substance to these recommendations by furnishing supporting laboratory data and cases of injury during servicing and operation of vaporizers in homes, offices, public eating places, and industrial establishments. The Committee pointed out that the vast majority of devices in use, because of poor construction and improper installation, violated accepted health practices. Attention was called to the urgency of this problem, and the Committee suggested that further steps be taken, at the state and local level, to curtail uncontrolled use. At least 14 states and 35 municipalities have since adopted measures controlling the installation, sale, or use of these devices. Other states and local groups have invoked existing provisions of their food laws and sanitary codes for similar purposes.

Further control governing the use of this type of insecticide volatilizing apparatus was recommended in a second release of the Interdepartmental Committee on Pest Control, Oct. 22, 1952. This statement superseded and expanded earlier recommendations for the safe use of continuously operating types of vaporizing equipment, particularly with respect to uniformity of output and use in food handling establishments. It reiterated previous warnings against home use or prolonged use in other environments and further advised against placement of vaporizers in areas where food is processed, served, or stored, unless it can be shown that contamination does not occur. The Interdepartmental Committee reaffirmed its recommendation for a maximum dispensing rate of 1 gm. per 15,000 cu. ft. in 24 hours; however, it restricted variation in output to 25% of the dispensing rate per hour. No suggestions were made about construction of the devices other than to advise that they should be so built that output in excess of that recommended is impossible. Although the Committee's recommendations have no binding legal effect, acceptance of these recommendations in new or amended state or local regulations provides direct control over vaporizers. By contrast, existing federal legislation has only an indirect influence since jurisdiction is restricted to the chemicals employed (Insecticide, Fungicide, and Rodenticide Act, 1947) or to situations in which food products may become contaminated (Food, Drug, and Cosmetic Act, 1938).

This release of the Interdepartmental Committee places the responsibility for demonstrating the efficiency and safety of insecticide vaporizers on the manufacturer or his agent and, at the same time, provides enforcement officials with a broad basis for rejecting or removing unacceptable equipment. Explicit directions for applying the proposed restrictions have not been outlined, in view of the obvious limitations of such a procedure. Precise requirements for equipment construction to allow accurate measurement of operating temperature and output were not prescribed because of uncontrollable environmental influences such as ventilation characteristics or the nature of the exposed surfaces in various treated areas. Since air concentration does not have a simple relationship to the amount of insecticide dispersed, tolerances for an atmospheric concentration of insecticide were not defined. They would likewise be unsuitable for judging the safety of installed apparatus other than for testing operating efficiency. Specific analytic methods for determining and distinguishing between small amounts of insecticides and other materials normally present in suspected food products could not be advised because available methods are not sufficiently convenient, sensitive, or discriminating for all purposes to which they might be applied. The use of spectrophotometric methods for detecting DDT or lindane have been suggested for this purpose in laboratories with sufficient personnel and equipment to perform these intricate analyses.

TECHNICAL DEVELOPMENTS

New requirements for the construction and installation of insecticide vaporizers were issued because field experience had shown that the previously established standards for safe and effective use were not entirely satisfactory. Many devices purportedly embodying the constructive features advised in the original release were still found in practice to vary widely in output and other types of performance. Since potentialities for harm are, in part, correlated with the degree that equipment varies from the recommended standards for release of the insecticide, stricter definition of the performance characteristics became necessary. Misinterpretation or circumvention of present recommendations is virtually impossible concerning this point.

Equally restrictive are the recommendations for prohibiting use where food is processed, served, or stored. Laboratory studies have shown that various types of exposed surfaces differ considerably in their absorptive capacities to identical air concentrations of lindane that are well under the saturation level of the chemical in the atmosphere. Preferential absorption of lindane from the atmosphere has been observed by a variety of constitutionally dissimilar surfaces such as varnished wood, linoleum, plastic cheese wrappers, kraft paper, waxed paper, rubber sheeting, fatty and nonfatty foods, and water. The rate of disappearance of lindane from surfaces so contaminated is neither constant nor uniform.

The concentration of the insecticide and duration of exposure as well as the nature and extent of the surface exposed influence absorption. Preliminary laboratory studies have shown that 0.1 to 1 ppm or more per day will be absorbed by fruits, vegetables, cereals, dairy products, meat, bread, pastries, and other types of food exposed to vapors from a properly operating unit. Under similar conditions, water absorbs sufficient chemicals to be lethal to tropical fish. These findings, coupled with the observation that previous restrictions were not and cannot be practically enforced in other than industrial environments, prompted the current restrictions against use in food handling establishments.

The ban on the use of continuously operating vaporizing equipment in homes or other places where extended exposure is possible has been further justified by additional experimental and clinical findings. Chemical pneumonitis and minimal liver and kidney damage have been observed in several species of animals exposed to 0.7 mg. of lindane per cubic meter, seven hours a day for periods up to six months. This is between three and four times the maximum tolerated concentration of 0.2 mg. per cubic meter in the atmosphere; although it conforms to current specifications, it indicates a narrow margin of safety. When equipment is improperly operating or otherwise not adhering to specified conditions of use, a dangerous concentration of insecticide could be readily acquired that would not necessarily produce immediate signs of injury. It was also noted that the amount of lindane in the atmosphere may vary tenfold, depending on the ventilation rate in the treated area. Under certain conditions of minimal ventilation, air concentrations that may even approach saturation can be produced by a properly operating and installed device. This is highly undesirable because it increases the inhalation hazard to exposed persons and may cause gross contamination of exposed surfaces, including foods.

These restrictions should not be interpreted to mean that lindane does not have legitimate insecticidal use in vapor or other physical forms. It is accepted for general household use as a space spray (0.1%) and as a residual spray (0.5%) for spot application. The claim that it is discriminatory to accept these applications while prohibiting vaporizers in similar situations is without factual basis. Whereas certain of the accepted applications initially provide essentially the same atmospheric concentration of the toxicant as that provided by continuously operating types of vaporizers, atmospheric levels of lindane are maintained day after day at a fairly constant level only with the latter devices. Constant concentration and constant exposure characterize vaporizers, and for these and other reasons they are potentially more dangerous to those exposed. Other influences, such as their manner of promotion and widespread misuse, augment these basic factors and justify the attention that vaporizers have been given by health and regulatory officials.

CLINICAL EXPERIENCE

Opinion varies greatly as to the safety of vaporizing devices in human environment. Evidence in the majority of cases of injury suggests that defective equipment or other types of nonconformance with recommendations for use were primarily responsible; nevertheless, it is impossible to state that ill effects have not or will not result from properly operating devices used precisely in accordance with instructions.

Extensive use of these devices has demonstrated that human beings can acquire a sensitivity to lindane. In addition to cases cited in a previous Committee report, additional cases involving angioneurotic edema, skin sensitivity, and urticaria have been both privately reported and published.[1] Since allergy is neither a unique nor a uniform clinical condition, it is likely that similar cases have occurred that have not been brought to the attention of the Committee.

Local reactions involving varying degrees of irritation to the eyes and respiratory tract continue to be the commonest types of complaints. Coughing, sneezing, headaches, dryness or burning about the eyes, pain in throat and nostrils, nausea, and other nonspecific symptoms are among those noted. Single and multiple cases of such injury have been reported to the Committee from use of the devices in homes and in a bakery, garage, food mart, railroad restaurant, and other public gathering places.

Occasionally, severer local and systemic effects are reported that have a suspected or reasonably certain causal relationship with vaporizing equipment. In addition to the case of polyneuritis described in a previous Committee report, three cases of anemia, a near-fatal anuria, an asthma-like condition, and a severe and persistent tracheitis attributable to vaporizer exposure have also been brought to the attention of the Committee. With the exception of those conditions (asthma, tracheitis) in which symptoms were characteristic and the circumstances of exposure directly identifiable with periods of operation of the devices, it is impossible to determine whether illness was coincidental and unrelated or whether it was precipitated by constant exposure to vaporizer fumes.

The following case reports illustrate the complexity of the problem:

> In January, 1953, a 30-year-old woman experienced excessive tiredness and weakness four months after installation in her home of a portable electric insecticide vaporizer. During the next three months more frequent menstruation, menorrhagia, anemia, petechiae and purpura over the lower limbs, and periodic epistaxes appeared. The patient was hospitalized May 9, 1953, for an extreme anemic condition (with a hemoglobin level of 19%, 880,000 red blood cells and 3,400 white blood cells), and transfusions of whole blood were given. The report of physical examination, laboratory tests, and treatment based on the medical record of the research center to which she was transferred a week later was as follows:
>
> Exposure to lindane was continuous from September, 1952, through April, 1953. The only drugs the patient had received during this period were penicillin and oxytetracycline (Terramycin). A proprietary rug cleaner containing a small amount of trichlorethylene had been used on one or more occasions during the winter.
>
> The patient's blood pressure, pulse, and respiration were normal. Scattered petechiae were present on the buccal mucosa, posterior pharynx, and lower portion of the legs. She had bilateral retinal hemorrhages, but splenomegaly or hepatomegaly were not evident.
>
> When the patient was admitted on May 17, 1953, laboratory findings were as follows: hemoglobin level, 10.4 gm. (67%) per 100 cc.; red blood cell count, 3,600,000; hematocrit, 35; mean cell volume, 97; mean corpuscular hemoglobin concentration, 29.6; sedimentation rate, 12 mm. per hour; and white blood cell count, 3,600. The differential count showed 4 band neutrophils, 10 segmented neutrophils, 39 large lymphocytes, 40 small lymphocytes, 6 monocytes, and 1 eosinophil. The number of platelets was greatly reduced. Platelet count was 24,500 and reticulocyte count 1.1%.
>
> Urinalysis, stool examination, and tuberculin tests were negative. Liver function studies were entirely within normal limits. Sternal marrow was moderately cellular and of the type associated with hypoplastic anemia. Many young normoblasts were seen, and erythrocytic hyperplasia was found with an erythrocyte to granulocyte (e/g) ratio of 3:1. Many large proerythroblasts were present. Granulopoiesis was decreased, and mature forms were infrequent. Heavy toxic granulation was present. Cells of the lymphoreticulum were seen in numbers, as well as mast cells and plasma cells. Only a few megakaryocytes were seen.
>
> The diagnosis was moderately severe hypoplastic anemia. The patient was given 300 mg. of cortisone per day for 10 days but was discharged with little improvement.

Eight other cases of anemia associated with exposure to lindane vapors, dust, and residual spray have also been directed to the attention of the Committee. One case associated with an improperly functioning insecticide vaporizer installed in a nursery and other rooms of a home involved a 3-year-old child and a 54-year-old nursemaid. It is unestablished whether the child and the nurse were suffering from anemias induced by lindane or from common diseases frequently associated with anemia. A fatal case of aplastic anemia in which a lindane residual spray was suspected as a possible etiological agent has also been reported.

---

[1] Leland, S. J.: Some Observations on the Toxicology of Lindane, New York, Proceedings of Chemical Specialties Manufacturers Association, June 1952, p. 112.

The patient, a 58-year-old farmer, had an essentially negative history of exposure to drugs and chemicals other than spray solution of 5% lindane in petroleum solvents. The farmer had used the spray solution at one week intervals during the summer of 1952. In August, 1952, prior to seeing the physician, the patient noted purpuric spots over the body. The next day he experienced anorexia and tarry stools. The gastrointestinal hemorrhage continued, and the patient was hospitalized. Supportive therapy included transfusions of whole blood, administration of vitamin C orally, and injections of liver extract, vitamin B_{12}, methapyrilene hydrochloride (Histadyl) and cortisone; he was discharged 11 days later. He was readmitted again in five days for the reappearance of similar symptoms. Ten days later he died. The findings on physical examination and the results of laboratory tests were similar to those described in the preceding case of hypoplastic anemia, but with lower hemoglobin level and red blood cell count.

Five additional cases of injury, one fatal, attributed to exposure to a 40% mixture of technical benzene hexachloride containing an unspecified amount of the gamma isomer (lindane) have been studied by a medical clinic of a foreign university. The conclusion of the study, which is presently awaiting publication, is that benzene hexachloride causes inhibition of the development of red blood cells in the bone marrow and this may occur in the absence of demonstrable injury to the liver.

In the several instances (anemia, anuria) in which etiology was uncertain, it was obvious that opportunity for injury was present. Excessive exposure to insecticide vaporizers was caused by intimate and sustained contact with vapors from a device installed in front of an air-conditioning unit in a small food establishment and by constant contact with the vaporized lindane and its chemical breakdown products from improperly functioning units placed in living and sleeping quarters. While the clinical evidence is suggestive, it is not conclusive; however, the cumulation of cases of anemia with a common history of exposure to various forms of lindane requires that the available facts be brought to the attention of the medical profession.

These cases illustrate an increasingly common problem encountered by medical groups evaluating reports of suspected injury from new chemicals. Too often there is little concrete information, only varying degrees of ignorance about factors influencing profound changes in organs from such exposure. Since experimental animal stuies at best can provide only an indication of the type of damage which may be expected, exhaustive study and reporting of human cases outside the usual pattern of injury are imperative and should be undertaken whenever circumstances permit.

FUMIGATING DEVICES

The home use of volatilized chlorinated hydrocarbon insecticides as a "fumigating" application is being exploited as an alternate approach to the large and lucrative domestic market for inexpensive insecticide vapor and fume dispensers. Currently available fumigating applicators vary considerably in design and functional hazards. They include lindane-impregnated paper strips, recessed and perforated insecticide dispersing electric light bulbs, tins of pyrotechnic fumigant powder, and various types of vaporizing equipment for attachment to heating devices such as light bulbs or for direct insertion into electrical outlets.

The so-called fumigating type of insecticide applicator has been accepted under federal law for use in closed and temporarily unoccupied spaces where food is covered and from which birds, fish, and other susceptible species of pets have been removed. Lindane is allowed in amounts ranging from a minimum of 1 gm. per 1,000 cu. ft. to a maximum of 2 gm. per 1,500 cu. ft. of space at not oftener than two week intervals. It is recommended that use should be limited to periods ranging from one-half to four hours, depending on the apparatus used. The premises must be reaired for one-half hour before reoccupancy. The technique is based on the principle of liberating sufficient amounts of insecticide into the atmosphere of a room to exceed the saturation level. Excess insecticide precipitates out in solid state, forming a residue over exposed horizontal surfaces.

High temperature fumigating devices, which release insecticide fumes in unoccupied rooms at periodic intervals, are reasonably safe if intelligently employed, but they also have many of the same basic dangers as insecticide vaporizers. Apparatus that resemble vaporizing devices in appearance or operating principle, or that have hazards from exposed flames, or that leave accessible uncombusted insecticide are liable to accidental or intentional misuse. Variations in design and performance of various available fumigators preclude blanket description of inherent dangers other than to advise that any departure from directions on the label of the accompanying chemical exposes users to the risk of injury.

The dangers inherent in the misuse of insecticide vaporizers employed as fumigators is of sufficient magnitude to warrant a third statement by the Interdepartmental Committee on Pest Control. In a release dated March 27, 1953, the Interdepartmental Committee recommended against their use in living quarters. The statement, which is directed not only to lindane-dispensing devices but also to any vaporizer using an insecticide as a fumigating agent, was precipitated by a growing trend to circumvent existing restrictions on the use of heat-volatilizing insecticide equipment in homes. Certain types of vaporizing devices, which do not conform to earlier recommendations for construction and installation, are being promoted as so-called fumigators for home use under circumstances that leave much to be desired. Nonrecommended insecticides, alone or in combination with accepted chemicals, are being used in a manner contrary to that generally considered sound. Normal fumigation procedures are not feasible in the customary use of these "fumigating" devices; yet, anything less definitive encourages violations of accepted health practice. Since their potential harmfulness through misuse far outweighs any recognized usefulness in homes, the current restriction was invoked.

ADVERTISING AND PROMOTIONAL PRACTICES

Although existing restrictions have had a beneficial influence, it is generally recognized that they have only partially deterred many of the abuses associated with insecticide dispersing appliances. Widespread misuse arising from improper installation and continued employment of unacceptable chemicals and equipment are still prevalent. These conditions are partially caused by the inability to enforce prohibitions against certain situations, such as home use, made prior to present regulatory bans and to the difficulty of policing use in other unacceptable environments which appear to many to be similar to those where vaporizers are legally allowed. However, the flamboyant and misleading advertising of certain of the more aggressive firms marketing these dispersers is mainly responsible for their continued, widespread misapplication.

As official recommendations become more restrictive, every promotional strategem is being employed to regain general acceptance. The thinly disguised attempts to maintain dubiously acquired competitive advantages include use of nonaccepted chemicals, cleverly contrived advertising implying safety even in prohibited applications, and inferences that equipment has been endorsed or approved by recognized scientific groups such as public health organizations, universities, or agencies of the state and federal government. The most flagrant of these questionable practices is the use of nonaccepted chemicals in continuously operating vaporizing devices with claims of safety for use anywhere, including homes where even recommended chemicals are forbidden in this type of application. Methoxychlor is the principal nonapproved chemical exploited in this fashion; however, there is reasonable suspicion that at least one other compound has been so employed.

The continued extravagant promotion of certain types of insecticide vaporizers under the guise of fumigating equipment is also of great interest to those responsible for protection of the public welfare. Insecticide fumigating devices are being advertised as portable, ornamental, deodorizing (chlorophyll), disinfecting (triethylene glycol), and useful for everything but healing purposes. The absurdity of this advertising is not so much a subject of medical concern as are the claims, direct and implied, of harmlessness for uses that are in direct violation of current safety practices for volatilized chemicals. It is inevitable that such tactics will lead to misuse, which ultimately becomes the common use as demonstrated by general practice with insecticide vaporizing devices. Pressure for more laws to regulate and even ban the employment of these types of insecticide dispensers is increasing, and action is a certainty unless industry polices itself.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

APPARATUS ACCEPTED

The following additional products have been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

RALPH E. DE FOREST, M.D., *Secretary.*

T. E. D. Elastic Stockings

Bauer & Black, Division of the Kendall Company, 309 W. Jackson Blvd., Chicago 6.

The T. E. D. Elastic Stockings cover the foot (except the toes) and leg up to a level just below the knee. There are three sizes: small, for a calf measuring up to 30 cm. (12 in.) in circumference; medium, for a calf measuring 30 to 38 cm. (12 to 15 in.); large, for a calf exceeding 38 cm. in circumference.

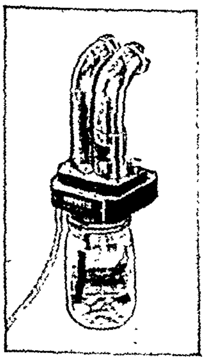
T. E. D. Elastic Stocking

The manufacturer's advertising emphasizes the use of these stockings with medical and surgical patients as a means of reducing the incidence of pulmonary embolism. Such use presupposes the possibility of maintaining the external pressure on the legs between 10 and 15 mm. of mercury. It is therefore necessary that a good fit be secured. The use of these stockings is contraindicated in the presence of ischemic vascular disease of the legs because evidence indicates that pressures as low as 10 mm. or lower reduce the blood flow through a limb in ischemic vascular disease and that such reduction may be critical in patients with incipient or actual tissue ischemia.

The Council secured evidence that the T. E. D. Elastic Stockings were well made and satisfactory when used according to instructions, with proper regard for contraindications.

Vapojette Supersaturation Attachment

Air-Shields, Inc., County Line Rd., Hatboro, Pa.



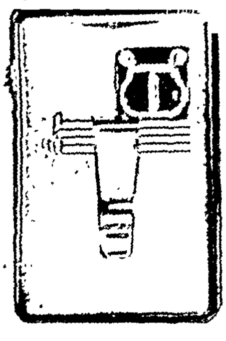
Vapojette Supersaturation Attachment

The Vapojette Supersaturation Attachment is a humidifier designed for use in connection with the Isolette Infant Incubator, which was accepted by the Council in 1949. Water is contained in a glass jar, into which an intake tube projects. The cap of the jar includes a nebulizing arrangement and bears two curved pipes that connect with two holes on the side of the transparent plastic cover or dome of the Isolette. The cap also bears a nipple for connection with the supply of oxygen or compressed air that actuates the nebulizer.

The entire unit weighs 1.1 kg. (2½ lb.). The jar contains 470 cc. when filled to the brim but is intended to hold about 320 cc. at a time. Directions state that the jar will hold enough distilled water for eight hours of use.

Beltone Mono-Pac Hearing Aids, Models Lyric and Rhapsody

Beltone Hearing Aid Company, 2900 W. 36th St., Chicago 32.



Beltone Mono-Pac Hearing Aid, Model Lyric

The Beltone Mono-Pac Hearing Aid, Model Lyric, is an electronic hearing aid employing three vacuum tubes powered by one 1.25 volt mercury-type A-battery and one 15 volt B-battery. With batteries and receiver the instrument weighs 109.6 gm. and measures 68 by 45 by 24 mm. A receiver for air conduction is provided.

The Beltone, Model Rhapsody, is similar to the Model Lyric except that a 30 volt B-battery is used. This model is intended for persons with a more severe hearing loss.

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following article.

RALPH E. DE FOREST, M.D., *Secretary.*

POWER OUTPUT OF DIATHERMY APPARATUS

The rating in watts of a diathermy apparatus that is given on its name plate and is customarily used to designate the power output may not be a reliable indication of the ability of the apparatus to heat tissues adequately. The Council on Physical Medicine and Rehabilitation has adopted the so-called thigh test as the standard method of determining heating efficacy.* In the opinion of the Council, the temperature rise in the thigh of an average healthy adult is the most accurate way to determine the heating capacity of diathermy apparatus. In brief, acceptable diathermy equipment must raise the temperature of the thigh to 104 F in 20 minutes without injury to or burning of the skin, or subjecting the patient to intolerable pain.

The rated output of a diathermy apparatus as recorded on the name plate is usually based on results of a test on a phantom lamp, or calorimeter load. The power output revealed by the phantom load might be completely out of line with the actual ability of the apparatus to heat tissues. The reason for this misleading result lies in the so-called matching of impedances. (Impedance for alternating current is similar to resistance for direct current.) This means that the internal impedance (the combination of resistance and reactance that chokes back flow of current) of the diathermy apparatus must match the impedance of the external lamp or calorimeter load. When the two impedances are the same, the greatest output is obtained. When body tissues are heated, their impedance seldom matches the internal impedance of the diathermy apparatus. To compensate for this, the diathermy apparatus must have a reserve of energy so that the physician can be assured that ample heat can be generated in the tissues.

As one of its tests, the Council on Physical Medicine and Rehabilitation uses three lamp loads, each of different value. If satisfactory outputs are obtained on each one of the loads, the Council is reasonably assured that the apparatus will be suitable for heating tissues. When the heating efficiency is questioned, the thigh test must be used to determine the actual conditions. The Council on Physical Medicine and Rehabilitation has made extensive tests of all submitted diathermy apparatus and is convinced that those accepted have ample reserve power to treat patients.

---

* A copy of the "Minimal Requirements for Acceptable Diathermy Apparatus" may be obtained by writing the Secretary of the Council on Physical Medicine and Rehabilitation.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
535 N. DEARBORN ST. . . . . CHICAGO 10, ILL.
Editor . . . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

SURGICAL ASPECTS OF PEPTIC ULCER

In the April 25, 1953, issue of THE JOURNAL is an editorial in which surgical aspects of peptic ulcer are discussed. This editorial was based on the report of a committee of the Gastroenterological Association.[1] A major conclusion of the report was as follows: "The results following partial gastric resection alone were superior to those following vagotomy with gastroenterostomy . . . for duodenal ulcer."

In June, 1953, there appeared in *Gastroenterology* a statement on errata, corrected tables, and an important modification of interpretation of the report by the committee.[2] Its conclusion now reads: "It is now apparent that the advantage of gastric resection for duodenal ulcer over gastroenterostomy and vagotomy is shown only if there is an estimated resection of more than 70 per cent of the stomach." This statement was published in answer to a critique [3] by Dr. Keith S. Grimson and in response to questions raised by others. The critique refers only to data on surgical treatment for duodenal ulcer. The report of the committee had already carried the statement, "Vagotomy alone may be superior to gastric resection for gastrojejunal ulcer subsequent to a previous gastric resection and is attended by a lower mortality." The critique stated that, with correction of a few apparent errors in two important comparative tables, "one could then proclaim vagotomy and gastroenterostomy the preferable procedure, particularly in view of the lesser mortality risk. Of the eight criteria studied as most reflecting welfare of patients five favor vagotomy and gastroenterostomy, results of either operation seem essentially equal in two, and one favors maximum resection over resection of less than 70% of the stomach or vagotomy."

The present statement of the committee and those of the critique indicate a direction of thought different from that of the previous editorial. Incidences of unsatisfactory results of operations for duodenal ulcer [4] are given separately for patients who have had one or more previous hemorrhages and for those who had not had hemorrhages.

Among the patients who had had hemorrhages, unsatisfactory results following vagotomy and gastroenterostomy were least frequently encountered in terms of mortality (1%), dissatisfaction of the patients (6.8%), and inability to work (4.8%). Unsatisfactory results following resection of more than 70% of the stomach were least frequently found for hemorrhage after operation (4.2). After resection of less than 70% of the stomach, unsatisfactory results were less frequent for recurrence of ulcer symptoms (3.2%). The percentages favor vagotomy and gastroenterostomy in three of these five criteria, and the less extensive and more extensive resections in one each.

The committee prepared and now emphasizes a table of comparison in which the incidences of unsatisfactory results are considered from a different standpoint and are based on a composite of results according to five criteria. This new table includes the criteria of satisfaction with the operation by the patient, freedom from ulcer symptoms, ability to work, absence of evidence of recurrence on roentgenograms, and absence of postoperative hemorrhage. It includes the number of patients who are reported to have responded unfavorably according to one or more of these five criteria, and hence the percentages are not the equivalent of totals of the number with unsatisfactory results according to the individual criteria. Not included in this table are the unsatisfactory results of operative mortality, weight loss, or diarrhea and the dumping syndrome. In this table of comparison, the lowest incidence of unsatisfactory results among patients who had had hemorrhages followed resection of more than 70% of the stomach (12.2%), the next lowest followed resection of less than 70% of the stomach (20.9%), and the highest followed vagotomy and gastroenterostomy (25.0%).

Among the patients who had not had profuse hemorrhages unsatisfactory results were least frequent following vagotomy and gastroenterostomy with regard to operative mortality (1.4%), hemorrhage after operation (2.1%), and inability to work (5.5%). When the extent of the resection was more than 70%, there were fewer unsatisfactory results when judgment was based on dissatisfaction of patients (4.2), and ulcer symptoms after the operation (3.3%). Unsatisfactory results following resection of less than 70% were higher for each of the five criteria already listed. They were also highest (24.6%) by the committee summary based on a composite of results according to these five criteria, whereas for resection of more than 70% the figure was lowest (13.7%), and for vagotomy was 19.7%.

The two remaining criteria reviewed by the critique were change of weight and occurrence of side-effects, i. e., diarrhea and the dumping syndrome. Of patients whose weight was reported [1] two years after vagotomy and gastroenterostomy, 68.9% had gained weight, 16.9%

---

[1] Report of the Committee on Surgical Procedures of the National Committee on Peptic Ulcer of the American Gastroenterological Association on Study of Vagotomy, Study of Gastric Resection, Comparative Study of Vagotomy and Gastric Resection, Gastroenterology **22**: 297-496 (Nov.) 1952.

[2] Statement of the Committee on Surgical Procedures on Errata in Report Published in Gastroenterology November 1952, Gastroenterology **24**: 280-286 (June) 1953.

[3] Grimson, K. S.: Surgical Procedures for Peptic Ulcer: A Critique of the Committee Report, Gastroenterology **24**: 275-280 (June) 1953.

[4] Footnotes 1 and 2.

weighed the same, and 14.2 had lost weight. The weight of the patients who had undergone resection was not asked by the questionnaire. The comment by the committee, however, that the "incidence of weight gain at the end of two years of follow-up was higher after vagotomy plus gastroenterostomy than following vagotomy plus resection," has some bearing, as it is generally agreed that the procedure of vagotomy and gastroenterostomy is less frequently associated with loss of weight than is resection. The incidence of diarrhea among all cases was 1.9% after vagotomy and gastroenterostomy, 1.2% after less extensive resection, and 2.2% after more extensive resection. The incidence of the dumping syndrome was 3.3% after vagotomy and gastroenterostomy, 8.9% after less extensive resection, and 4.2% after more extensive resection.

It seems evident that, for the most part, resection of less than 70% of the stomach was associated with the highest incidence of unsatisfactory results. Whether results of resection of more than 70% of the stomach were equal to the results of vagotomy and gastroenterostomy is debatable. It depends upon whether the committee's summary of composite results for the five criteria used is or is not more important than the individual percentages for operative mortality, dissatisfaction, inability to work, recurrence of ulcer symptoms or hemorrhage, loss of weight, or occurrence of the two side-effects, diarrhea and the dumping syndrome. If these seven criteria are considered individually, vagotomy and gastroenterostomy was most frequently associated with the lowest incidence of unsatisfactory results and resection of more than 70% of the stomach, the next lowest.

The committee has completed an arduous task, and its members have made important modifications of their original conclusions. Their present conclusion that gastric resection for duodenal ulcer has an advantage over vagotomy and gastroenterostomy only if there is an estimated resection of more than 70% of the stomach is based on emphasis of their comparison table that is based on composite results according to five criteria. Grimson[3] and others emphasize comparison of the incidence of each unsatisfactory result of operation and believe that the use of vagotomy and gastrojejunostomy with its lesser mortality risk and its more favorable results has been demonstrated as preferable in cases of duodenal ulcer.

After 10 years of debate over which is the best operation for duodenal ulcer, it is evident that there is still no indisputable decision. Nevertheless, progress has been made. Each school of thought now recognizes the advisability of vagotomy for jejunal ulcer or of vagotomy and gastroenterostomy for a duodenal ulcer so situated that resection would be hazardous, and of resection for exsanguinating hemorrhage or for gastric ulcer. Some believe that resection and vagotomy should be combined, and this may be justified, at least for a few patients with difficult ulcer problems. Either procedure is associated with a definite incidence of unsatisfactory results and usually should be employed alone. All seem agreed, however, that no operation should be undertaken unless it is necessary.

DRAFT LEGISLATION FOR PHYSICIANS EXTENDED

On June 29, 1953, the President of the United States approved a bill (Public Law 84, 83rd Congress) that will extend until July 1, 1955, the additional liability of physicians for military service.

The American Medical Association has, since September, 1950, maintained a close and active interest in this legislation and as a consequence was able to make a valuable contribution to the final law.

In view of the extreme importance of this legislation to physicians, its specific provisions are worthy of detailed consideration. The measure as signed by the President will put into effect the following provisions:

(1) Extend the effective date of the law until July 1, 1955;

(2) Retain the same maximum ages for registration at age 50 and for liability for induction at age 51;

(3) Continue in effect the existing four priorities with the following amendments: (a) All service performed since Sept. 16, 1940, as an officer or as an enlisted man, with certain exceptions, which will be outlined later, will be credited as service. Under the original law, physicians in priorities 1 and 2 receive credit only for service performed "subsequent" to deferment or participation in a Navy V-12 or Army Specialized Training Program during World War II;

(b) The length of service required to qualify for a priority 4 classification for doctors who were deferred from service or educated at government expense during World War II is reduced from 21 to 17 months. As a result of this provision, a substantial number of doctors will be reclassified from priority 2 to priority 4. This provision does not affect the new period of service which may be required, it merely changes the definition of the priority 2 and 4 classifications.

(c) The following new periods of service will be established for men inducted or recalled to active duty, irrespective of their priority classification.

Previous Service	*New Period of Duty*
9 months or less	24 months
9 to 12 months	21 months
12 to 15 months	18 months
15 to 21 months	15 months

(d) The law would eliminate any further liability for induction or recall to active duty, except in time of war or national emergency hereafter declared by Congress, for those men in priority 4 who have had 21 months or more of service since Sept. 16, 1940.

(4) Define "active duty" and "active service" to include: (a) Full-time duty in the active service of the United States since Sept. 16, 1940, in the Army, Navy, Air Force, Marine Corps, Coast Guard or United States Public Health Service, including reserve components;

(b) Time spent in work of national importance by conscientious objectors during World War II and under the current military training and service act;

(c) Service performed before Sept. 2, 1945, in the armed forces of countries that were allies of the United States during World War II; and

(d) Service performed, as a physician or dentist, by United States citizens employed by the Panama Canal Health Department between Sept. 16, 1940, and Sept. 2, 1945.

(5) Exclude from consideration as "active duty," periods spent in a Navy V-12 or Army Specialized Training Program; in a military internship, residency or senior student program; in military service for the sole purpose of undergoing a physical examination or while engaged in active duty for training entered into after June 29, 1953;

(6) Authorize the appointment of medical officers in grades commensurate with their professional education, experience or ability. This section is intended to provide uniform treatment with respect to rank for all physicians called to active duty, irrespective of whether they had previous military service;

(7) Continue until July 1, 1955, the authority to provide the "special pay" of $100 per month for physicians in the armed forces. This section also extends the class of persons eligible for such pay to include veterinarians;

(8) Authorize the commissioning of noncitizens of the United States as officers in the armed forces;

(9) Terminate automatically, upon completion of 12 months or more of service subsequent to Sept. 9, 1950, the reserve commissions of all physicians taken into service by operation of the "Doctor-Draft" law. Upon completion of this same service, medical reservists recalled to active duty will be given an opportunity to resign their commissions. Such persons, whether registrants or reservists, shall not be liable thereafter for recall or reinduction except in time of war or national emergency hereafter declared by the Congress;

(10) Reenact the provisions of the original law which permit the deferment of those individuals who are essential to the national health, safety and interest;

(11) Authorize the national, state and local medical advisory committees to the Selective Service System, in addition to their present authority, to make recommendations with reference to the deferment of (*a*) registrants engaged in residency training, (*b*) those serving on faculties of medical and certain other schools, and (*c*) those engaged in essential laboratory and clinical research;

(12) Extend until July 1, 1955, the authority of the President to recall medical reservists to active duty involuntarily;

(13) Be retroactive in effect. Those men already in uniform who would have benefited from the new changes in the law if they had been enacted prior to their entrance into service will, upon filing and application, be eligible for release as soon as possible and in no event later than 90 days after the effective date of the Act (June 29, 1953).

In considering the over-all effect of the new law, it should be noted that the major changes involve greater recognition of prior military service. The result is that a particular registrant, by being able to take advantage of the various new provisions, may either (*a*) become exempt from liability for service, (*b*) be placed in a priority less vulnerable to immediate call, (*c*) be subject to a reduced term of service, or (*d*) effect a severance of military status within 90 days upon application or after the completion of his period of service by being either discharged or permitted to resign.

In comparing the new law with the testimony presented by the American Medical Association before the Armed Services Committees of the House of Representatives and the Senate, it is interesting to note that many recommendations were accepted and others were modified or rejected.

As examples of the latter, it will be noted that the Association recommended that the liability for registration and call-up of veteran physicians in priority 4, as well as the involuntary recall of medical reservists in this category, be terminated as of July 1, 1953. The law, as enacted, excuses from further liability those registrants and reservists in priority 4 with 21 months or more of service since Sept. 16, 1940. This law amounts to substantial acceptance of the Association's recommendation, since between 85 and 90% of the physicians in priority 4 have 21 months or more of service.

In an effort to afford a greater measure of equity in priority 2 cases, the Association recommended that the second period of duty be limited to 12 months for a physician who had 12 or more months of previous service. In addition, it was suggested that all accrued or terminal leave as well as travel time be included in computing total service. The law does not allow credit for accrued leave, and instead of the prescribed period of one year's service, a staggered period of service was established (see item 3(*c*) above).

It was also the belief of the Association that the reserve commissions of physicians called into service by operation of the law should not be vacated automatically upon completion of required service. Instead, it was felt that physicians should be given the option of retaining or resigning their commissions and that reserve officers in the Navy and Marine Corps with service in World War II should be permitted to resign their commissions immediately if they wished to do so. The recommendations of the Association in this regard were not accepted.

Perhaps the most significant suggestion made by the Association was that any extension of the law be limited to one year and that an earnest effort be made by the Congress and the armed forces to devise alternative methods for securing needed medical officer personnel. It is sincerely hoped that the action of the Congress in extending the law for two years is not an indication of an attitude of acceptance of the draft law as a continuing device for procuring physicians for the armed services.

If members of the Congress and representatives of the armed forces are sincere in their reference to the "Doctor-Draft" law as "temporary" and "discriminatory" legislation, they will take immediate steps to discontinue it at the earliest possible time. A step in this direction would be the immediate implementation of the following alternative suggestions that were made by the Association in its testimony: (1) Increased utilization of civilian contract physicians in performing the medical duties of the armed services; (2) Investigation of ways of increasing the attractiveness of service in the military and naval medical corps and the development of a more efficient program for medical officers and allied health personnel procurement; (3) Improved utilization of medical personnel and curtailment in their assignment to nonprofessional duties; and (4) A reduction in the amount of medical care provided by physicians in uniform to dependents of service personnel.

WARNING ON INSECTICIDE VAPORIZERS

Elsewhere in The Journal (page 1232) is a report of the Committee on Pesticides on the health problems of lindane insecticide vaporizer and fumigator devices. The Committee's present report supplements its earlier warnings on vaporizer hazards by providing additional laboratory and clinical evidence of the risks attendant to improper use of these devices and the highly toxic material that they dispense. Recommendations against the use of insecticide vaporizers in homes, sleeping quarters, or where food can become contaminated were made nearly two years ago. In spite of the warnings and their subsequent extension to other areas of use and related operations, this type of insecticide volatilizing equipment continues to be advertised and promoted as safe and harmless for use in homes, hospitals, nurseries, and similar unacceptable locations. The current report of the Committee on Pesticides questions the wisdom and ethics of these promotional practices in view of the cumulating evidence of the dangers of insecticide vaporizers and fumigators in such environments.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

In reading about the current military developments in Korea and other parts of the world where our troops are employed, I cannot help but recall some of my own reactions while in uniform. I am sure that all of us who have been in service have at some time during our tour of military duty experienced the feeling that we were forgotten by our friends and colleagues at home. Inasmuch as this feeling is frequently occasioned by lack of communication, I would like to devote the President's Page this month to a discussion of things that the American Medical Association has done and is doing with respect to military medical affairs. I believe these activities, which are conducted primarily by the Council on National Emergency Medical Service, will demonstrate clearly that physicians in the armed forces have not been forgotten or neglected by their national professional society.

One of the primary interests of the Association during the past several years has been the "Doctor-Draft" law. Since the passage of the legislation in September, 1950, the Association has attempted to (1) facilitate and increase the efficiency of the administration of the law; (2) effect a timely and orderly system of recall and rotation of medical reservists; (3) prevent a repetition of the medical overstaffing that occurred in certain areas during World War II; and (4) curtail the utilization of medical personnel on nonprofessional assignments and in the treatment of military dependents.

On June 29, 1953, the President signed Public Law 84, 83rd Congress, which extended a revised version of the law until July 1, 1955. The detailed explanation of that measure, which is contained in this issue of THE JOURNAL, indicates the extent of the interest and active participation that the Association has maintained in this matter. During the past six months alone, the Council on National Emergency Medical Service has received hundreds of letters, phone calls, and personal visits from physicians in service or from those about to be called under the act. These inquiries have been handled promptly, and they have been utilized in effecting many equitable changes in the new law.

There are many less publicized but equally important activities of the Association that are conducted for the benefit of physicians in service. At present the Council on National Emergency Medical Service is engaged in two such projects. The first of these, started approximately 10 months ago, is a continuing survey of physicians released from active military service. To date, a total of 4,404 questionnaires have been sent to such physicians, and 3,040, or 70%, have been filled out and returned. Results of this survey will be used as the basis for a series of conferences with the Assistant Secretary of Defense for Health Affairs and the Surgeons General to further improve the utilization of medical personnel by the armed forces and to formulate a more effective voluntary officer procurement program. The second project is to acquaint physicians being released from service with existing civilian medical opportunities. This program, inaugurated with the cooperation of the Department of Defense and the Selective Service System, is endorsed by the state medical societies and the chairmen of state volunteer medical advisory committees to the Selective Service System.

Names of physicians to be released from service, together with other information, are supplied the Council by the three Surgeons General. The Council then writes each physician, inquiring as to his present plans, his medical qualifications, and the state in which he prefers to train or practice. The names of physicians who want additional information are sent to the chairman of the appropriate volunteer medical advisory committee and, through the Council on Medical Service, to the Physician Placement Services of the state medical societies.

From July 28, 1952, to June 30, 1953, letters were sent to 4,251 individual physicians. Of this number, 809 requested further information. The response to date indicates that a real service to physicians, state medical societies, and state volunteer medical advisory committees has resulted.

Space does not permit a full discussion of the many other activities of the Council. One deals with the "special pay" of $100 per month for doctors in the armed forces, the authority for which was extended until July 1, 1955. I have suggested, and the Council now has under consideration, the publication of a monthly newsletter for keeping physicians in the armed forces fully informed as to activities of the Association in their behalf and current developments in the various fields in which they are interested.

I know that I speak for the Council on National Emergency Medical Service and for all of the officers of the Association in pledging continued active interest in medical military affairs and in the immediate and postservice problems of the physicians in uniform. If there are ways in which you believe we can be more effective in fulfilling our obligations in this regard, let me assure you that your suggestions will be most welcome.

EDWARD J. MCCORMICK, M.D., Toledo, Ohio

ORGANIZATION SECTION

COMMITTEE ON LEGISLATION

At its meeting on May 30, 1953, the Committee on Legislation took action on 39 legislative measures introduced in the 83rd Congress, recommending either approval or disapproval. All of the recommendations were approved by the Board of Trustees on June 4, 1953. Following is a brief résumé of these bills grouped according to subject, together with the position adopted by the Association in each instance.

MEMBERS OF THE ARMED SERVICES AND THEIR DEPENDENTS

S. 1495 (identical bill: H. R. 4642)

Introduced by Mr. Murray of Montana and referred to the Senate Committee on Labor and Public Welfare.

Digest of Bills.—The bills would authorize the furnishing of medical, nursing and hospital maternity and infant care to the wives and children of members of the armed forces below the rank of warrant officer. The program would be administered by the Children's Bureau, through grants to states which have approved state plans providing such care. The program would be effective until the present national emergency is declared ended.

Association Position.—The Association **actively opposes** these bills on the ground that there is no demonstrated need for such a program.

VETERANS AND VETERANS ADMINISTRATION

S. 1068

Introduced by Mr. Griswold of Nebraska and Mr. Ives of New York and referred to the Committee on Labor and Public Welfare.

Digest of Bill.—The bill would amend Veterans Regulation Numbered 6 (a), as amended, to authorize the Administrator of Veterans' Affairs to supply hospital care and medical treatment to veterans who are citizens of the United States visiting or residing abroad for disabilities incurred in service.

Association Position.—The Association **supports** the principle of providing care for veterans with service-connected disabilities, but opposes this bill, as drafted, because it is too vague and may possibly authorize the construction of Veterans Administration hospitals overseas.

H. R. 4155

Introduced by Mr. Elliott of Alabama and referred to the Committee on Veterans' Affairs.

Digest of Bill.—The bill would amend Veterans Regulation Numbered 1 (a), as amended, to establish a presumption of service connection for chronic and tropical diseases "becoming manifest" within two years after separation from active service.

Association Position.—The Association **actively opposes** this bill because it is too general and does not define the terms "chronic" and "tropical diseases." In addition, the bill represents another effort to further liberalize existing Veterans Administration regulations regarding the presumption of service connection. The continuation of such a policy of liberalization will not only result in a distortion of the theory on which compensation benefits are based but will also result in the extension of hospitalization and medical care benefits to veterans with disabilities that are in actuality not service connected, regardless of their ability to pay for such care from private sources.

H. R. 4601

Introduced by Mr. Teague of Texas and referred to the House of Representatives Committee on Veterans' Affairs.

Digest of Bill.—The bill would amend section 6 of Public No. 2, 73rd Congress, as amended, by restating existing medical and hospital benefits for veterans with service-connected disabilities and by redefining such benefits for veterans with non-service-connected disabilities.

The bill would eliminate the present provision of the law, which provides: "The statement under oath of the applicant on such form as may be prescribed by the Administrator of Veterans' Affairs shall be accepted as sufficient evidence of inability to defray necessary expenses" and would, instead, give the administrator the authority to determine these veterans with non-service-connected disabilities who are unable to pay for care. The requirement of inability to pay would not apply to veterans in need of "extensive hospital treatment for chronic or long-term non-service-connected ailments which . . . will incapacitate them from earning a living for an indefinite period of time."

In addition, the Administrator of Veterans Affairs would be authorized to collect from a veteran with non-service-connected disabilities for necessary hospital care at the established rate if the veteran agrees to pay or if the administrator finds the veteran is able to pay.

Association Position.—The Association **actively opposes** this bill because, if enacted, the present status of medical care for veterans with non-service-connected disabilities would be further confused, and the program would be expanded rather than curtailed.

EDUCATION

H. R. 3850

Introduced by Mrs. Bolton of Ohio and referred to the House of Representatives Committee on Interstate and Foreign Commerce.

Digest of Bill.—The bill would provide for (1) a limited three year program with appropriations of 5 million dollars for the first year, 10 million dollars for the second year, and 15 million dollars for the third year, with additional amounts for practical nursing education grants; (2) administration of state programs by state boards of nurse examiners—state plans to improve and expand nurse training facilities would be in accordance with criteria set forth in the bill; (3) the allocation of federal funds to each state in proportion to the number of newly-enrolled nurse trainees, and (4) scholarships awarded by the state boards of nurse examiners on the basis of ability and financial need of applicants.

Association Position.—The Association **opposes** this bill because the Association feels that legislative proposals providing federal financial assistance must be free of the strings of federal control common to this type of bill. Alternative recommendations were presented in detail by Dr. Walter B. Martin in his appearance relative to H. R. 910, 82nd Congress, before the Committee on Interstate and Foreign Commerce of the House of Representatives on Sept. 13, 1951.

TAX RELIEF

S. 1154 (identical bills: H. R. 3583 and H. R. 3585)

Introduced by Mr. Ives of New York and Mr. Flanders of Vermont and referred to the Senate Committee on Finance.

Digest of Bills.—The bills would amend section 23 of the Internal Revenue Code (relating to allowable deductions from gross income) so as to permit deductions by individuals and by corporations of amounts paid as subscription charges to cooperating prepayment health service plans as defined in Title VII of the Public Health Act. These amendments would be applicable with respect to taxable years beginning after Dec. 31, 1949.

Association Position.—The Association **opposes** these bills because they favor a particular type of insurance plan, i. e., those eligible for certain state loans for health facilities.

H. R. 3375 (identical or similar bills: H. R. 3434, H. R. 3779, H. R. 3911, and H. R. 4450)

Introduced by Mr. Matthews of Florida and referred to the Committee on Ways and Means.

Digest of Bills.—The bills would authorize the deduction of medical and dental expenses, not compensated for by insurance or otherwise, for the medical care of the taxpayer, his spouse, or his dependents.

Note: Under present law medical expenses are deductible only after the adjusted gross income has been determined and such expenses exceed a minimum amount (5% of adjusted gross income) and are not in excess of a fixed maximum ($2,500 on an individual return; $5,000 for a husband and wife, jointly).

Association Position.—The association **actively approves** the bills in principle since they would afford individual relief in cases of extremely high medical expenses and would also be an incentive to buy voluntary health insurance.

H. R. 4393

Introduced by Mr. Davis of Georgia and referred to the House of Representatives Committee on Ways and Means.

Digest of Bill.—The bill would amend the Internal Revenue Code to allow persons engaged in teaching school or in any other profession to deduct, as trade or business expenses, and in determining adjusted gross income, ordinary and reasonable educational expenses paid or incurred for the purpose of (1) carrying on his profession, (2) making himself better qualified for his profession, or (3) increasing his remuneration from his profession. The amendments would be applicable with respect to taxable years beginning after Dec. 31, 1952.

Association Position.—The Association **actively supports** this bill in line with its long-established position that physicians should be permitted to deduct postgraduate educational expenses for income tax purposes.

SOCIAL SECURITY AND DISABILITY INSURANCE

H. R. 3487 (similar bill: H. R. 3608)

Introduced by Mr. Lane of Massachusetts and referred to House of Representatives Committee on Ways and Means.

Digest of Bills.—The bills would amend title II of the Social Security Act (relating to Old Age and Survivors Insurance) by extending coverage to additional employees and to certain self-employed groups. In referring to self-employed groups, the bill would give credit for income derived "by an individual from any trade or business carried on by such individual" or "from any trade or business carried on by a partnership of which he is a member."

Although physicians are not mentioned specifically, they would be included in the group of self-employed covered by the bills.

Association Position.—The Association **actively opposes** these bills insofar as they refer to physicians. This action is in accord with the action of the House of Delegates taken in June, 1949.

H. R. 3554 (similar bill: H. R. 3777)

Introduced by Mr. Zablocki of Wisconsin and referred to the Committee on Ways and Means.

Digest of Bill.—The bill would provide disability insurance benefits for permanently and totally disabled persons who are unable to engage in any substantially gainful activity by reason of a medically determinable physical or mental impairment or blindness.

The bill would also provide benefits for wives and children of the totally disabled and would define retirement age as 65 for men and 60 for women.

Association Position.—The Association **actively opposes** the bills, thus reiterating the past opposition of the Association to amendments to the Social Security Act providing for permanent and total disability and cash sickness benefits and a broad rehabilitative program for Social Security beneficiaries.

It is the belief of the Association that the initiation of a federal disability benefit program would represent a major step toward the wholesale nationalization of medical care and the socialization of the practice of medicine. The provisions of these bills would establish an inferior type of physician-patient relationship, which would undoubtedly result in a deterioration of medical care.

In addition it is felt that legislation of this type should not be considered until the study of the entire Social Security System now being made by Congressman Carl T. Curtis is complete.

H. R. 4160

Introduced by Mr. Keane of New Jersey and referred to the Committee on Ways and Means.

Digest of Bill.—The bill would provide for a waiver of Social Security tax payments during periods of permanent and total disability.

Disability is defined as "inability to engage in any substantially gainful activity by reason of any medically determinable physical or mental impairment which can be expected to be permanent, or blindness." Benefits (waiver of premiums) would not be allowed for a period of disability less than six months.

The eventual larger Old Age and Survivors Insurance pensions would come from the Social Security Trust Fund, maintained by payroll taxes from employer and employee. The trust fund also would be used for two additional purposes: (1) to pay governmental or private agencies or organizations for services in determining the existence, continuation and termination of disability; (2) to relieve the states of any cost of rehabilitation if, within the first six months, a state cooperating with the federal government under the Vocational Rehabilitation Act certifies that the individual appears to be rehabilitable to gainful employment.

The Federal Security Administrator could not require anyone claiming benefits to undergo a physical examination to establish disability; however, in lieu of such examination the applicant would have to furnish proof of disability satisfactory to the Administrator or forego benefits. Also, the bill contains this provision: "Nothing in this title shall be construed as authorizing the Administrator or any other officer or employee of the United States to interfere in any way with the practice of medicine or with relationships between practitioners of medicine and their patients, or to exercise any supervision or control over the administration or operation of any hospital."

Association Position.—The Association **actively opposes** the bill for the following reasons: 1. The Association favors the adoption of a formula for computing Old Age and Survivors Insurance benefits based on a wage earner's best five or ten years. Such a formula would obviate the necessity for special consideration in cases involving permanent and total disability. 2. The proposals contained in the bill have not been thoroughly explored. 3. The provisions of the bill, although administrable by state agencies, would require the establishment of over-all standards and regulations by the Federal Security Agency. 4. The intervention by the federal government in this phase of medical activity would be a further interference in the field of private medical care.

H. R. 4676

Introduced by Mr. Ford of Michigan and referred to the House of Representatives Committee on Ways and Means.

Digest of Bill.—The bill would amend various sections of the Social Security Act to redefine the terms "old-age assistance" and "aid to the blind" and "aid to the permanently and totally disabled" to include medical care in behalf of or any type of remedial care recognized under state law for beneficiaries under such three programs if the individuals concerned are patients in non-public institutions. Patients in public medical institutions other than tuberculosis or mental would be eligible.

Association Position.—The Association **actively opposes** this bill on the grounds: (1) that the health and medical welfare of the individual is his personal responsibility, and that financial aid should be rendered to the individual only when he is unable to provide it himself; and (2) that financial aid should be rendered by philanthropic, local, and state agencies first and that federal aid should be sought only when funds are not available from these sources.

COMPULSORY HEALTH "INSURANCE" AND FEDERAL SUBSIDIZATION OF PRIVATE PLANS

S. 1153 (identical bills: H. R. 3582, H. R. 3586 and H. R. 4128)

Introduced by Mr. Ives of New York and Mr. Flanders of Vermont and referred to the Senate Committee on Labor and Public Welfare.

Digest of Bills.—These are omnibus bills which propose a variety of legislative changes in the role of the federal government in medicine. The legislation, if enacted, would be known as the "National Health Act, 1953," and would provide for the following items:

(a) *Federal Aid to Voluntary Health Service Plans.*—This part of the bill would authorize federal assistance to voluntary nonprofit prepayment health service plans. Funds would be paid to a designated state agency by the Surgeon General of the U. S. Public Health Service for administration, provided the state had a plan previously approved by the Surgeon General.

(b) *Authorize Federal Payroll Deductions for Health Insurance Premiums.*—This section would authorize the deduction of premiums for health insurance from the salaries of employees of the federal government or members of the Armed Forces.

(c) *Loans to Health Service Plans for Building and Equipping Personal Health Service Centers.*—This section of the bill would authorize the appropriation of a 10 million dollar loan fund to be used by the Surgeon General to make loans to assist in the establishment and equipping of personal health service centers.

(d) *Federal Aid to Medical and Nursing Schools.*—This section would provide federal financial assistance to medical and nursing schools for construction and toward the cost of establishing, maintaining, and enlarging their staffs and of operating and maintaining their facilities, including the acquisition of equipment. Payments would be based upon the number of old and new students enrolled.

(e) *Health Study and Planning.*—This section would authorize the creation of a permanent commission to study the nature and extent of the health needs of the nation and to formulate effective long-range health plans.

(f) *Federal Aid to Local Public Health Units.*—The purpose of this section is to develop, extend and improve basic state and local public health organizations. The section would authorize state grants to develop and maintain public health services, including the establishment of new local public health units, the training of personnel for state and local public health work, and provision of measures for the prevention, treatment, and control of disease. The section would also authorize the Surgeon General of the U. S. Public Health Service to provide demonstrations and to train personnel for state and local public health work.

Association Position.—The Association **actively opposes** these bills since they would federalize certain health activities that can and should be planned for and operated on a local level and because the bills are incompatible with the sound philosophies concerning the rendition, distribution, and financing of medical care enunciated by the Association.

H. R. 4593

Introduced by Mr. Hagen of Minnesota and referred to the Committee on Interstate and Foreign Commerce.

Digest of Bill.—The bill would authorize federal assistance to voluntary, nonprofit associations offering prepaid health service programs to secure facilities and equipment through long term interest bearing loans. The bill would make available federal funds that could be borrowed at 2% interest for the purpose of operating health insurance plans, such funds to be used only for the construction of clinics and diagnostic and treatment centers.

The Surgeon General of the U. S. Public Health Service, with the advice of a National Health Services Facilities Council, would formulate standards for the making of loans, the determining of eligibility of organizations, the amount of loans, amortization, and determining priority for making loans.

The bill defines "health services" as meaning "services such as are provided by physicians and dentists and similar professional groups, members of which are licensed under state laws, laboratory and x-ray services and other services related thereto."

Association Position.—The Association **actively opposes** the bill since it would federalize certain health activities which can and should be planned for and operated on a local level.

MISCELLANEOUS

S. 1436

Introduced by Mr. Griswold of Nebraska and referred to the Committee on Government Operations.

Digest of Bill.—This bill would establish a federal Board of Hospitalization to be composed of the Attorney General of the United States, the secretaries of Defense and the Interior, the Administrator of Veterans' Affairs, the Federal Security Agency and the General Services Administration, and the Director of the Bureau of the Budget. The Administrator of Veterans' Affairs would act as chairman of the board.

The board would attempt to coordinate the construction and utilization of hospital facilities by the federal government to prevent overlapping and duplication of services and overbuilding of facilities.

Association Position.—The Association **approves** the principle of the establishment of a federal Board of Hospitalization but **disapproves** the present bill, and recommends that any board that is established be composed of the Secretary of the Interior, the Director of the Bureau of the Budget, and a representative of the Department of Defense and that the number of civilian members be at least equal to the number of government representatives. Government officials in charge of medical programs should serve in an advisory capacity only.

S. 1584

Introduced by Mr. Murray of Montana and referred to the Senate Committee on Labor and Public Welfare.

Digest of Bill.—The bill would charge the Public Health Service with responsibility for: (*a*) disseminating pertinent facts concerning leprosy, including information regarding the latest important medicines and methods for treating the disease; (*b*) advising and cooperating with other government and private agencies in this field; (*c*) studying and investigating conditions, problems and needs in this field; and (*d*) providing treatment in existing federal and state facilities or in new facilities or paying for necessary private medical care.

In addition, the bill would authorize the establishment of a National Advisory Council on Leprosy, which would advise the Surgeon General of the Public Health Service. Programs would be authorized for rehabilitation and reemployment of leprosy patients, for financial assistance for patients and their dependents, and for compensation for disability. The bill would also authorize the expenditure of federal funds for research under the direction of the Surgeon General of the Public Health Service to discover causes and cures for the disease.

Association Position.—The Association **actively opposes** this bill because there are already existing agencies for such a program under the Surgeon General of the U. S. Public Health Service. In addition, the need for the type of expansion proposed by the bill has not been demonstrated.

H. R. 3204

Introduced by Mr. Yates of Illinois and referred to the House of Representatives Committee on Interstate and Foreign Commerce.

Digest of Bill.—The bill would authorize the U. S. Public Health Service to admit to its hospitals persons committed by state courts who are beneficiaries of the service or narcotic addicts. Such care would be subject to the availability of accommodations and within the discretion of the Surgeon General.

Association Position.—The Association approves the bill because of the existing shortage of proper facilities for the persons covered by the bill.

H. R. 3473 (similar bill: H. R. 4262)

Introduced by Mr. Doyle of California and referred to the Committee on Education and Labor.

Digest of Bills.—The bills propose to establish an independent federal agency to be known as the Federal Agency for Handicapped, to provide various types of rehabilitative services to persons physically or mentally handicapped. The agency would absorb the functions of the Office of Vocational Rehabilitation; the Division of the Physically Handicapped in the Bureau of Labor Statistics; the functions of the Library of Congress in furnishing aid for the blind; and the functions of the Federal Security Agency with respect to the Vocational Rehabilitation Act and state grants for aid to the blind. The new agency also would coordinate all other rehabilitative measures for the benefit of handicapped persons, administered by other agencies of the government.

The following specific programs, financed in whole or in part by the federal government and subject to federal approval and control, would be authorized: (*a*) loans to persons or corporations engaged in the rehabilitation of handicapped persons; (*b*) grants to states for payment of monthly benefits to needy handicapped persons unsuitable for rehabilitation; (*c*) grants to local school boards and nonprofit educational groups providing special services to handicapped persons; (*d*) establishment of a revolving loan fund to refinance state educational rehabilitative plans; (*e*) special federal and state recruitment and employment programs; (*f*) public safety programs; (*g*) special programs for severely handicapped persons, including establishment of workshops; (*h*) the establishment of rehabilitation centers; and (*i*) the establishment of a Federal Second Injury Act.

Association Position.—The Association opposes these bills pending the report of the new commission on federal-state relationships.

H. R. 3551 (similar bill: H. R. 3604)

Introduced by Mrs. Sullivan of Missouri and referred to the Committee on Interstate and Foreign Commerce.

Digest of Bills.—The bills would amend Section 704 of the Federal Food, Drug and Cosmetic Act by restoring authority in the Food and Drug Administration to inspect factories without first making a request and obtaining permission. The exhibiting of appropriate credentials by an authorized officer or employee would authorize the entering and inspecting of "any factory, warehouse, or establishment in which food, drugs, devices, or cosmetics are manufactured, processed, packed or held" or to enter "any vehicle used to transport" such products.

Association Position.—The Association approves the principle of the bills, provided that proper safeguards are included to protect the physician-pharmacist-patient relationship. It believes that the inspection privilege should not be extended to confidential business and professional regards that have no specific bearing on the enforcement of the Food, Drug and Cosmetic Act.

H. R. 4145

Introduced by Mr. Bailey of West Virginia and referred to the House of Representatives Committee on Education and Labor.

Digest of Bill.—The bill would authorize the expenditure of federal funds to states on a matching basis for industrial safety programs. The amounts payable to the various states would be based on population, the number of wage earners, special industrial hazards, area of protection, the cost of state administration, and the financial needs of the states.

The Secretary of Labor would be charged with the responsibility for administering the program and for passing the acceptability of state industrial safety plans.

Association Position.—The Association opposes the bill to await the findings of the commission being established to study federal-state relationships.

H. R. 4456

Introduced by Mr. Heller of New York and referred to the House of Representatives Committee on Interstate and Foreign Commerce.

Digest of Bill.—The bill would authorize federal financial assistance to "certain large cities in the United States" with a population in excess of 100,000 for the establishment and maintenance of uniform centralized ambulance control systems. The sum of 2 million dollars would be authorized for this purpose to be administered by the "Federal Security Administration" through designated municipal agencies.

Association Position.—The Association opposes this bill as unnecessary and an encroachment of the federal government in private and local government affairs.

H. J. Res. 72 (identical bill: H. J. Res. 174)

Introduced by Mr. Ray of New York and referred to the House of Representatives Committee on Interstate and Foreign Commerce.

Digest of Resolutions.—These resolutions would authorize the Surgeon General of the Public Health Service, the Secretary of Agriculture, and the Secretary of the Interior to conduct research, investigation, experiments, and demonstrations into the causes, effects, and means of prevention and control of air pollution. Appropriations would be provided for the next five years for this work. The Surgeon General, the Secretary of Agriculture, and the Secretary of the Interior could seek the assistance of other federal, state, and local as well as public and private agencies and bodies concerned with the problem. A joint annual progress report would be submitted by the Surgeon General and the Secretary of the Interior to the Congress.

Association Position.—The Association approves these resolutions because the subject is new and unknown in the field of medicine and research is necessary.

H. Res. 146

Introduced by Mr. Dollinger of New York and referred to the House of Representatives Committee on Rules.

Digest of Resolution.—The resolution would authorize the creation of a select committee, composed of seven members of the House of Representatives, to be appointed by the Speaker to conduct a full and complete investigation and study of air pollution in the United States. The study would cover the causes, relative seriousness by area, effects, and methods of eliminating air pollution.

The resolution calls for a report to the Congress and would give the committee the power to hold hearings and to subpoena witnesses, documents and records.

Association Position.—The Association approves this bill because the subject is new and unknown in the field of medicine and research is necessary.

H. J. Res. 230

Introduced by Mr. Hebert of Louisiana and referred to the Committee on the Judiciary.

Digest of Resolution.—The resolution proposes an amendment to the Constitution of the United States which would limit the present scope of treaties and executive agreements. Specifically the proposed amendment would: (*a*) render void any treaty or executive agreement which denies or abridges any right enumerated in the Constitution; (*b*) outlaw any treaty authorizing any foreign power or international organization to adjudicate constitutional rights of United States citizens or any domestic issue; and (*c*) require domestic legislation to permit a treaty to become effective as internal law in the United States.

To become operative the proposed Constitutional amendment, if adopted by Congress, must be ratified by the legislatures of three-fourths of the states within seven years from the date of its submission.

Association Position.—The Association actively approves this resolution. This is in accord with the position adopted by the House of Delegates in December, 1952.

THE SCIENTIFIC EXHIBIT, ST. LOUIS CLINICAL MEETING, DEC. 1-4, 1953

Arrangements are in progress for the Scientific Exhibit at the Clinical Meeting of the American Medical Association in St. Louis, Dec. 1-4, 1953. The Chairman of the Subcommittee on Scientific Exhibit is O. P. J. Falk, M.D., 18 S. Kingshighway, St. Louis 8. The Scientific Exhibit will be correlated as far as possible with the various sections chosen for the meeting, and the subchairmen from St. Louis will act in an advisory capacity for the various section groups as follows:

Medicine	Ralph A. Kinsella, M.D.
Surgery	Carl A. Moyer, M.D.
Pediatrics	Peter Danis, M.D.
Obstetrics and Gynecology	Robert Crossen, M.D.
Tuberculosis	Paul Murphy, M.D.
Cardiovascular Disease	Arthur E. Strauss, M.D.
Arthritis	R. O. Muether, M.D.
Dermatology	G. V. Stryker, M.D.
Gastrointestinal Diseases	Jos. W. Larimore, M.D.
Neuropsychiatry	Edwin F. Gildea, M.D.

Application blanks for space in the Scientific Exhibit are now available and may be obtained from any of the physicians mentioned above or from the Director, Scientific Exhibit, American Medical Association, 535 N. Dearborn St., Chicago 10. Applications will close on Sept. 15.

NEW SECRETARY FOR COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

Dr. Edward L. Turner, dean of the School of Medicine and chairman of the Division of Health Sciences of the University of Washington in Seattle since 1945, has been appointed Secretary and administrative officer of the Council on Medical Education and Hospitals. Dr. Turner will assume the secretaryship on Oct. 1.

Dr. Turner received the B.S. degree in 1922 and the M.S. degree in 1923 from the University of Chicago. He received his M.D. from the University of Pennsylvania in 1928. After serving on the staff of Albert Merritt Billings Hospital, University of Chicago, Dr. Turner was appointed to the faculty of the American University of Beirut, where from 1933 to 1936 he was professor of medicine. In 1936, Dr. Turner was appointed professor of medicine at Meharry Medical College, and in 1938 he also became president of the college and continued in that capacity until 1944. During this period he supervised the reorganization of the schools of medicine, dentistry, nursing, medical laboratory technology, and dental hygiene as well as the George W. Hubbard Teaching Hospital of the college.

In 1944 Dr. Turner entered private practice in Bradford, Pa., but a year later was called to Seattle as dean and professor of medicine to organize the new medical school of the University of Washington.

Dr. Turner has written numerous articles in the fields of physiology, internal medicine, tropical medicine, and medical education. He is a diplomate of the American Board of Internal Medicine, is a former vice-president of the Association of American Medical Colleges, and is currently a member of the association's executive council. He is a member of the Washington State Medical Association, a fellow of the American College of Physicians, a member of the Association of American Physicians, and a member of the National Advisory Heart Council. Dr. Turner succeeds Dr. Donald G. Anderson, Secretary of the Council since 1947, who has been appointed Dean of the University of Rochester School of Medicine and Dentistry.

Dr. Edward H. Leveroos, who has been Associate Secretary of the Council on Medical Education and Hospitals since 1948, has been appointed to the newly created position of Director, Division of Hospitals and Graduate Education, of the Council on Medical Education and Hospitals. In this new position, Dr. Leveroos will be in direct charge of the Council's program of approving hospitals for internship and residency training and of the activities of the Council's staff in the program of the Joint Commission on the Accreditation of Hospitals.

Dr. Leveroos graduated from the Superior State Teachers College in 1931 and received his M.D. from the University of Minnesota in 1940. After interning at the Minneapolis General Hospital, Dr. Leveroos served in the Air Force until 1946, at which time he held the rank of Lieutenant Colonel. Dr. Leveroos received the degree of Master of Hospital Administration from Northwestern University in 1947. He was clinical director of the Veterans Administration Hospital, Hines, Ill., at the time he joined the Council's staff in 1947.

FEDERAL MEDICAL LEGISLATION

Broadening Social Security

The present Social Security System would be broadly revised by a bill, S. 2260, introduced by Senators Lehman (D., N. Y.), Murray (D., Mont.), Jackson (D., Wash.), Humphrey (D., Minn.), Kennedy (D., Mass.), Douglas (D., Ill.), Green (D., R. I.), Morse (Ind., Ore.), Pastore (D., R. I.), Neely (D., W. Va.), and Magnuson (D., Wash.). A number of changes are proposed, chief of which are (1) extension of coverage to an estimated 8 million persons not now covered, including members of the armed forces, farm owners, farm workers, additional household workers, ministers, certain groups of public employees, and some professional groups, including lawyers, veterinarians, accountants, architects, funeral directors, and engineers, but not physicians or dentists; (2) increase of that portion of wages subject to tax from $3,600 to $6,000; (3) increase of monthly dollar benefits of various types to a maximum of $162 for one individual who has been covered 40 years and has a $500 a month average wage (see Congressional Record 99:7984 [July 1] 1953); (4) increase of from $75 to $100 in the amount a retired person under the age of 75 could earn in a month without suspension of his benefit payment; (5) provision of benefits equal to primary retirement benefits for permanently and totally disabled persons. (During periods of such disability, benefit status would be frozen so that, if the person already is or later becomes eligible for retirement benefits, the benefit level would not be reduced by wages lost because of disability.) To be eligible for permanent and total disability insurance the individual must have contributed for 5 of the 10 years preceding his disability and for a year and a half in the three and one-fourth years immediately preceding his disability. Disabled persons are required to submit to examination and reexamination from time to time under regulations of the Secretary of the Department of Health, Education, and Welfare. The Secretary could stop benefit payments if a disabled person refused rehabilitation, evaluation, and training. State rehabilitation agencies would furnish rehabilitation services and be reimbursed for the full cost from the social security trust fund. The Secretary is authorized to secure the cooperation of appropriate federal, state, or other political agencies and of private medical, dental, hospital, nursing, health, educational, and social welfare groups in carrying out the disability benefit section); and (6) establishment of a cash sickness insurance, with benefits limited to 26 weeks, for persons temporarily disabled.

This bill was referred to the Committee on Finance. It is identical with H. R. 6034 (Dingell, D., Mich.), H. R. 6035 (Bolling, D., Mo.), H. R. 6036 (Roosevelt, D., N. Y.), H. R. 6041 (Celler, D., N. Y.), H. R. 6042 (Dodd, D., Conn.), H. R. 6043 (Eberharter, D., Pa.), H. R. 6044 (Elliott, D., Ala.), H. R. 6045 (Howell, D., N. J.), H. R. 6046 (Rhodes, D., Pa.), H. R. 6056 (Shelley, D., Calif.), and H. R. 6072 (Holifield, D., Calif.), all of which were referred to the Committee on Ways and Means.

Transportation of Fireworks

Senator Bridges (R., N. H.) in S. 2245 proposes to prohibit the transportation of fireworks into states that prohibit their sale. This bill is identical with H. R. 116 (Church), previously reported, recently amended, and reported favorably to the House by the Committee on the Judiciary. It was referred to the Committee on the Judiciary.

The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

Medical Care for Veterans

Congressman Teague (D., Texas) in H. R. 6015 would amend the present law on hospitalization and medical care of veterans to make the Administrator rather than the veteran determine whether the veteran is able to pay for non-service-connected disability or illness care. Hospitalization and treatment in non-service-connected cases would still depend on the availability of beds. A preference order would be established for admission of veterans with non-service-connected illness, preference being given "after emergency cases . . . to those in need of extensive hospital treatment for chronic or long-term non-service-connected ailments to the extent that facilities available for cases in these categories will permit. In determining whether the veteran is unable to defray the necessary expenses of hospitalization, the Administrator shall take into account, along with other factors, the fact that a veteran has an insurance contract, on a prepaid or reimbursement basis, covering all or part of needed hospital care, or is otherwise covered for all or part of necessary hospital care." This was referred to the Veterans' Affairs Committee.

Loans to College Students

Congressman Boland (D., Mass.) in H. R. 6079 proposes to establish a federal scholarship revolving loan fund to which each state would contribute an amount not to exceed 10% of the loans advanced to that state's students during the preceding year. Loans would be made at the rate of not more than $1,000 a year for college-grade studies and $1,500 a year for postcollege-grade studies over a period of four years. States would furnish lists of eligible borrowers to the U. S. Commissioner of Education, but advances could be made only to students accepted by an educational institution. This measure was referred to the Committee on Labor and Education.

STATE MEDICAL LEGISLATION

California

Bills Enacted.—H. R. 167, was adopted June 10, 1953. It directs the Interim Committee on Public Health to study and analyze all facts relating to the whole field of public health including hospital districts, operation of ambulances, fluoridation of water, **conduct of massage establishments, coroners and revision of the coroner system**, etc. H. R. 215, was adopted June 9, 1953. It would memorialize Congress to take the necessary steps to insure that sufficient funds be appropriated to the appropriate agencies so that adequate medical care and treatment is accorded to ill and disabled veterans and further to take necessary steps to insure that **no more veterans hospitals are closed** until such time as there is a conclusive showing that a surplus of beds for veterans who need care exists. A. 1175, has become ch. 1045 of the laws of 1953. It amends the medical practice act relating to **reciprocity applicants** who complete their course of training in a school which has been approved by the board at the time the reciprocity application is filed, if the school was approved by the board in 1949 or prior to that year and if the applicant meets certain other requirements. A. 2239, has become ch. 913 of the laws of 1953. It amends the law relating to witnesses in narcotic cases by providing that **no witness may refuse to testify** to any fact or produce any paper concerning which he is examined in such proceeding for the reason that his testimony or the production of the paper may tend to incriminate him. S. R. 143, was adopted June 10, 1953. It directs the interim committee on the education and rehabilitation of handicapped children and adults to study and analyze the existing state policies pertaining to the **education and rehabilitation of all types of physically and mentally handicapped persons**, with particular reference to the financial, administrative, professional, and legal problems involved in providing special education and rehabilitation for such persons, including, but not limited to, the study, analysis, and investigation of all matters pertaining to this resolution. S. R. 174, was adopted June 7, 1953. It memorializes the Congress of the United States to take necessary steps to insure that sufficient funds are appropriated to the appropriate agencies so that adequate medical care and treatment is accorded to ill and disabled veterans and to take necessary steps to insure that **no more veterans hospitals are closed** until such time as there is a conclusive showing that a surplus of beds for veterans who need care exists. S. 602, has become ch. 1051, of the laws of 1953. It amends the law relating to vocational nursing by, among other things, setting forth facts constituting **unprofessional conduct** which would authorize the suspension or revocation of a nurse's license. It also authorizes the board to suspend the license of a person who is so mentally ill as to be unable to carry on with safety to the public the practice authorized by the license. S. 606, has become ch. 1053 of the laws of 1953. It amends the law relating to nursing by, among other things, defining the term **"unprofessional conduct"** and by authorizing the board to suspend the license of a licentiate who is so mentally ill as to be unable to carry on with safety to the public the practice authorized by the license.

Hawaii

Bill Enacted.—S. 567 relating to the reporting of gunshot wounds was previously reported as having been approved June 16, 1953. The bill was not approved. It died in the House.

Maine

Bill Enacted.—H. 1197, was approved May 8, 1953. It authorizes the governor to appoint a **state committee on aging** to study the problems, both of the state itself and its people, which arise with the tremendous increase in numbers and from changed attitudes towards our older citizens.

Massachusetts

Bill Enacted.—H. 2756, has become ch. 63 of the resolves of 1953. It resolves that the commission established in 1951 to study the problem of **a state medical and dental school** under the jurisdiction of the University of Massachusetts also will consider the development of an adequate program of higher education.

Nebraska

Bill Enacted.—L. R. 29, was adopted June 4, 1953. It directs the Nebraska legislative council to study the medical, social, and economic problems pertaining to **the aged and mentally ill.**

New Hampshire

Bill Enacted.—H. 430 has become ch. 228 of the laws of 1953. It provides for the creation of a **council on mental health** to advise and consult upon common problems in the field of mental health.

Ohio

Bill Introduced.—S. 294, proposes regulations for the examination and treatment of **mentally abnormal sex deviates** by qualified psychiatrists.

Bill Enacted.—H. 494, was approved June 5, 1953. It authorizes the **executive-secretary** of the county child welfare fund, upon the advice of one or more reputable practicing physicians, **to consent to medical, dental and surgical care**, including surgery and the administration of anesthetics, innoculations, and immunizations, or other care as appears necessary for any child who is a ward of such board.

Oklahoma

Bills Enacted.—H. 585, was approved June 15, 1953. It is a **university hospital psychiatry and neurology service act** to provide the citizens of Oklahoma with a diagnostic and remedial psychiatry and neurology service, to provide the school of medicine of the University of Oklahoma with a means of furnishing professional education and research in psychiatry and neurology, and to provide for the administration and use of the facilities, located in the university hospital, for this purpose. H. 953, was approved June 20, 1953. It makes it unlawful for any optometrist, physician or other person making eye examinations to receive or accept any **rebate, kickback, reward, or premium** from any optical company or any other person or to knowingly allow or permit any person engaged in or interested in the sale of such optical goods to solicit business for any person licensed under the provisions of the medical practice act or the optometry practice act. S. 241, was approved June 12, 1953. It provides appropriations for the Oklahoma commission for crippled children and also provides that whenever the terms "physician" and medical care and hospitalization are used in the act the same shall include **osteopathic practitioners** and the services of osteopathic practitioners and hospitals within the scope of their practice as defined by state law.

Pennsylvania

Bills Introduced.—H. 1536, proposes the establishment of **a division of alcohol studies and rehabilitation** to study the problems of alcoholism, treat, and rehabilitate persons addicted to excessive use of alcoholic beverages and promote preventive and educational programs designed to eliminate alcoholism. S. 706, proposes to provide **scholarships for the medical education** of qualified residents in the commonwealth. Persons accepting such scholarships shall enter into an agreement with the commonwealth whereby they shall agree to serve in any state institution designated by the secretary of welfare as an intern or resident for a period of not less than four years after graduation from medical school.

Bills Enacted.—H. 38, was approved June 19, 1953. It amends the **penalty provisions of the narcotic act** by authorizing imprisonment up to 30 years for second and subsequent offenses and by providing that in the case of second or subsequent offenses the offender shall not be entitled to a suspended sentence or to parole. H. 779, was approved June 19, 1953. It amends the law relating to chiropractic by, among other things, authorizing the board to license by reciprocity individuals from other states and provinces of the Dominion of Canada if the standards of licensing in such states and provinces are substantially the same as those provided in Pennsylvania and if similar privileges are accorded persons licensed in this commonwealth and if the applicants hold valid licenses and if the applicable rules and regulations prescribed by the board are followed.

Wisconsin

Bills Enacted.—S. 162, has become ch. 325 of the laws of 1953. It amends the medical practice act by providing for an **osteopathic member** of the state board of medical examiners. S. 360, has become ch. 330 of the laws of 1953. It is a **hospital regulation and approval act** requiring hospitals to obtain the approval of the state board of health before they engage in business.

MEDICAL NEWS

ARKANSAS

Barlow Memorial Fund.—Friends of the late Dr. Brian E. Barlow have established the Brian E. Barlow Memorial Fund, which will be used to purchase equipment at St. Mary's Hospital in Dermott.

Society News.—The Arkansas Obstetrical and Gynecological Society, which was formed April 20 in conjunction with the Arkansas State Medical Society, elected Dr. Eugene T. Ellison, Texarkana, president, Dr. Willis E. Brown, Little Rock, president-elect, Dr. Robert W. Ross, Little Rock, secretary-treasurer, and Drs. Hoyt L. Choate, Little Rock, and Haynes G. Jackson, Hot Springs National Park, members of the executive committee.

"Dr. Norris Day."—Dr. Rutial O. Norris, Tuckerman, a past president of the Jackson County Medical Society, was recently honored by his community, which celebrated "Dr. Norris Day" with a public reception. Dr. Norris, who has practiced in Tuckerman for 40 years, has been president of the National Eclectic Medical Association and treasurer of the Arkansas Eclectic Medical Association. He is a past president of the Tuckerman Service Club.

CALIFORNIA

Postgraduate Courses.—The University of California at Los Angeles School of Medicine and University Extension, in cooperation with the San Diego County Medical Society, offers postgraduate instruction in therapeutics, office gynecology, and peripheral vascular diseases in a program to be given from 9 a. m. to 5 p. m., Aug. 12, 19, and 26 in building 153, U. S. Naval Hospital, San Diego. Additional information may be secured from Dr. Thomas H. Sternberg, University of California Medical Extension, Los Angeles 24.

Dr. Geiger Honored.—The president of the Republic of Brazil, His Excellency Getulio Vargas, has conferred on Dr. Jacob C. Geiger, health officer, Oakland, the highest degree of the decoration La Cruz del Sud (the Southern Cross), with the following citation: "For distinguished and valuable services rendered to the Government of Brazil and its people in the fields of public health, medicine, and science." His native state, Louisiana, also honored Dr. Geiger by giving him a commission as a colonel on Governor Kennon's staff and making him an honorary senator of the Louisiana State Senate.

ILLINOIS

Warning Against Wood Ticks.—Dr. Roland R. Cross, state public health director, Springfield, has issued a warning to outdoor recreation seekers concerning the dangers of being bitten by wood ticks, some of which transmit Rocky Mountain spotted fever. Three cases, one terminating fatally, have been reported in Illinois since the last week in May.

Dr. Ole Nelson Retires.—Dr. Ole C. Nelson, medical superintendent of Cook County Hospital, Chicago, has retired at the age of 71 after 42 years of service. Dr. Nelson, who was familiarly known as "Mr. County Hospital," was honored at a staff luncheon at the hospital as well as at a reception and a tea at Karl A. Meyer Hall, the new interns' residence. On behalf of the Cook County commissioners, officials, physicians, nurses, and other associates honoring Dr. Nelson, Dr. Karl A. Meyer, surgical director of Cook County institutions, presented Dr. Nelson with an automobile.

Chicago

Cardiac Funds to Researchers.—Checks totaling $91,800 were recently presented by the Chicago Heart Association to 13 Chicago research scientists. The largest awards ($10,000 each) went to Drs. Albert Dorfman, George E. Wakerlin, Louis N. Katz, and Earl P. Benditt.

"Golden Apples" Awarded.—The Raymond B. Allen instructorship awards, keys in the form of golden apples, have been presented by students at the University of Illinois College of Medicine. Designed to honor excellency in individual instructorship, they were awarded to Dr. Heyworth N. Sanford, clinical professor of pediatrics; Dr. Frank B. Kelly, clinical professor of medicine; Dr. Norman B. Roberg, clinical assistant professor of medicine; Theodore R. Sherrod, Ph.D., assistant professor of pharmacology; and Faith LaVelle, Ph.D., instructor in anatomy.

IOWA

Dr. Tharp Honored.—Nearly 400 persons attended a dinner in the Monroe High School gymnasium to honor Dr. Herbert M. Tharp, who has served the community for 25 years. The program, patterned after the television program, "This Is Your Life," brought together persons who had played an important role in Dr. Tharp's career, including a surgical nurse from the Chicago clinic where he took his internship, several of the women who served in his office, his first patient in Monroe, and his first and last babies. The Monroe Commercial Club presented a scroll inscribed "A Salute to Dr. H. M. Tharp, whose 25 years of long, diligent and faithful service to the community as physician, surgeon and benefactor have earned for him this recognition."

LOUISIANA

Society News.—At the annual meeting the New Orleans Graduate Medical Assembly elected Dr. Andrew V. Friedrichs, president, Dr. Woodard D. Beacham, president-elect, Drs. Howard R. Mahorner, Ambrose H. Storck, and Theodore L. L. Soniat, vice-presidents, Dr. Maurice E. St. Martin, secretary, and Dr. Jules Myron Davidson, treasurer. The 17th annual meeting will be held March 8-11, 1954, at the Municipal Auditorium.

Portraits Presented to Tulane.—Oil portraits of the late Dr. Isadore Dyer, former dean, the late Dr. Wilbur C. Smith, professor of gross anatomy, and Dr. Edward L. King, professor emeritus of obstetrics, were recently presented to Tulane University of Louisiana School of Medicine, New Orleans. During the presentation ceremonies Dr. Lucien A. LeDoux, New Orleans, paid tribute to Dr. Dyer as the founder of the home in Carville for patients with leprosy in 1894. Dr. Dyer, who was editor of the *New Orleans Medical and Surgical Journal* and of the *American Journal of Tropical Diseases and Preventive Medicine,* was twice Vice-President of the American Medical Association, and was one of the founders and fifth president of the Southern Medical Association. Dr. Isadore Dyer is head of the division of obstetrics at the school, and Dr. John Lewis Dyer, instructor in medicine.

MASSACHUSETTS

Dr. Kirkwood Appointed Health Commissioner.—Dr. Samuel B. Kirkwood, Brookline, has been appointed to a five year term as commissioner of public health of the Commonwealth of Massachusetts to replace Dr. Vlado A. Getting, health commissioner for the past 10 years, who has been appointed professor of public health practice at the University of Michigan School of Public Health in Ann Arbor and consultant to

---

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

the Detroit Department of Health. Dr. Kirkwood, who in 1934-1935 was epidemiologist for the division of tuberculosis of the Massachusetts Department of Health, in 1939 joined the faculty of the Harvard University School of Public Health, where since 1946 he has been assistant professor of maternal health.

University News.—Dr. Joseph S. Barr, clinical professor of orthopedic surgery, and Dr. Fredrick J. Stare, professor of nutrition, Harvard Medical School, Boston, were among 13 medical scientists who recently spent seven weeks in Indonesia as an international team recruited by the World Health Organization to exchange scientific information with Indonesian colleagues.——The Boston University School of Medicine announces that Dr. Martin J. English, after 22 years of service, has retired from his positions as professor and head of the department of pediatrics and chief of the pediatric service at the Boston City Hospital. Dr. Eli Friedman has succeeded Dr. English as chief of the pediatric service at the Boston City Hospital, and Dr. David M. Greeley, assistant dean at the Boston University School of Medicine, has been appointed acting head of the department of pediatrics and director of pediatric teaching at the Boston City Hospital.

NEW JERSEY

Society News.—The Radiological Society of New Jersey recently elected Dr. Vincent M. Whelan, Red Bank, president, Dr. Nicholas G. Demy, Plainfield, vice-president, Dr. Salomon Silvera, Jersey City, secretary, and Dr. Carye-Belle Henle, Newark, treasurer.

Orthopedic Contest.—The New Jersey Orthopaedic Society announces its annual contest (prize $100) for the best original contribution in the field of orthopedic surgery submitted by an intern or resident of a New Jersey hospital. The project, which may deal with any aspects of orthopedics, must be completed during the internship or residency, or within six months thereafter. Papers should be submitted to the secretary, Dr. William Kruger, 31 Lincoln Park, Newark, on or before Jan. 15, 1954.

Dr. Rake Honored.—Dr. Geoffrey William Rake, recently elected mayor of Millstone, and coordinator of the office of scientific affairs of E. R. Squibb and Sons Division, Mathieson Chemical Corporation, has been named a member of the board of directors of the American Institute for the Tropics and chairman of its committee on medicine and public health. Dr. Rake was affiliated with the Johns Hopkins Hospital, Baltimore, the Rockefeller Institute, New York, and the University of Toronto in Canada before he became head of the microbiology division of the Squibb Institute for Medical Research in 1937. Dr. Rake will attend the International Congress of Tropical Medicine and Malaria in Istanbul, Turkey, and will be U. S. delegate to the International Congress of Microbiology, which will be held in Rome, Italy, in September.

NEW YORK

State Radiological Society Organized.—Under the aegis and during the annual meeting of the Medical Society of the State of New York in Buffalo, the Radiological Society of New York State was organized to federate into one group the radiologists of the state, in order "to advance the knowledge of radiology not only for diagnostic but for treatment purposes and to advance the use of the new forms of radiant energy and to promote the betterment of public health." A tentative constitution and bylaws were adopted and the following temporary officers elected: Dr. W. James MacFarland, Hornell, president; Dr. Percival A. Robin, Hempstead, vice-president; and Dr. Mario C. Gian, Buffalo, secretary and treasurer.

Dr. Hilleboe Honored.—Dr. Herman E. Hilleboe, Albany, New York state commissioner of health, was awarded an honorary doctor of science degree by Rochester University at its 103rd annual commencement. In making the presentation, Dr. George H. Whipple, dean, University of Rochester School of Medicine, cited Dr. Hilleboe as "physician, investigator, administrator of rare vision and exceptional capacity for accomplishment." Dr. Hilleboe, who previously served as epidemiologist in the state department of health, Minnesota, and in the National Institutes of Health, U. S. Public Health Service, Washington, D. C., was promoted to assistant surgeon general in 1944 and moved to New York State in 1947.

New York City

Dr. Swift Receives Award in Rheumatism.—The American Rheumatism Association recently bestowed on Dr. Homer F. Swift, member emeritus of the Rockfeller Institute since 1946, its distinguished service award for research in rheumatic fever. This is the second time the award has been made since the association was formed 23 years ago.

Personal.—At the annual dinner of the Surgical Supply Division of the United Jewish Appeal, Dr. Marcus D. Kogel, commissioner of hospitals, was awarded a special citation for "his leadership in, and dedicated service to, the progress of health-giving industry and the betterment of the city, and for outstanding service for the progress of our community."

University News.—Dr. Richard C. deBodo, associate professor of pharmacology, New York University College of Medicine, has been appointed to the rank of full professor. Dr. deBodo formerly studied under a Rockefeller Fellowship in London with the University College and the National Institute for Medical Research, while holding teaching appointments as an associate professor of pharmacology from 1920 through 1929 with the University of Pécs in his native Hungary. He has been on the faculty of the College of Medicine since 1929 and served as acting chairman of the department of pharmacology for six months in 1952.

New Medical Director for Equitable Life.—Dr. Norvin C. Kiefer, director of the Health and Special Weapons Defense Division of the Federal Civil Defense Administration since 1951, has been appointed chief medical director of the Equitable Life Assurance Society of the United States, effective Aug. 1. Dr. Kiefer was commissioned in the regular corps of the U. S. Public Health Service in 1945, transferred to the Office of the Surgeon General of the U. S. Public Health Service in 1948 and placed in charge of a new program of Health Emergency Planning, and a year later made director of the Medical Services Division of the National Security Resources Board.

OHIO

Memorial Wading Pool.—A children's wading pool was recently dedicated at the War Memorial Park, Toronto, as a memorial to Dr. Horace D. McCulloch, who practiced in that town for 40 years. Dr. McCulloch founded and was for many years director of the city health department. Contributions for the pool, which was a project of his fellow members of the Toronto Kiwanis Club, were made by various local church, social, fraternal, and industrial organizations.

President McCormick Honored.—In recognition of the election of Dr. Edward J. McCormick, Toledo, to the Presidency of the American Medical Association, the House of Representatives of the 100th Ohio General Assembly recently adopted a resolution "in tribute and respect to an outstanding Ohioan who through the forces of industry, ability, and leadership has attained one of the highest honors his profession can bestow upon him." The resolution pointed out that Dr. McCormick, a past president of the Ohio State Medical Association, has served in numerous other official capacities from the local to the national levels; that in 1949 he was a member of the medical mission invited by General Douglas MacArthur to make a survey of Japan's health needs; and that in the following year he went to Geneva as a U. S. delegate to the third assembly of the United Nation's World Health Organization. Dr. McCormick was recently honored also by Xavier University, Cincinnati, which bestowed on him the honorary degree of doctor of laws during its commencement exercises, at which he delivered the principal address.

PENNSYLVANIA

Commission on Geriatrics.—The Medical Society of the State of Pennsylvania has appointed the following commission on geriatrics: Drs. B. Franklin Rosenberry, Palmerton, chairman; Joseph T. Freeman, Philadelphia, chairman of the Commission on Geriatrics of the Philadelphia County Medical Society; Andrew B. Fuller, Pittsburgh; William J. Daw, Wilkes-Barre; Harry M. Klinger, Danville; George W. Chamberlin, Reading; George B. Rush, Aliquippa; Roy W. Goshorn, Allentown; and Edward F. Corson, Philadelphia. The commission, expressing its desire to cooperate with state agencies having to do with problems of the aged, has offered its services in the medical field.

Pittsburgh

Society News.—The Pittsburgh Roentgen Society has elected Dr. Edwin J. Euphrat, president, Dr. Peter M. Feltwell, vice-president, Dr. Donald H. Rice, secretary, and Dr. Newton Hornick, treasurer.

Grant for Investigation of Alaskan Health Problems.—Dr. Thomas Parran, dean of the Pittsburgh Graduate School of Public Health, will direct a study of health problems in Alaska under the sponsorship of (1) the U. S. Department of the Interior, which has made a $90,000 grant, (2) the government of Alaska, and (3) the several federal departments concerned with health problems there. A team of public health specialists from the university, consisting of Dr. Parran, Dr. James A. Crabtree, professor of public health practice, Antonio Ciocco, Sc.D., professor of biostatistics, and Walter J. McNerney, assistant professor of hospital administration, will conduct a survey this summer and another during the summer of 1954. The project will attempt to learn more about the health status of Alaska's native population and to develop both immediate and long-range plans for improved health services for both the native and non-native population. It is scheduled to be completed by Dec. 31, 1954. The work is to "include but not be limited to" the following fields: (1) collection and analysis of available data on the general health and hospital problems of the native and contiguous white population, with special data on tuberculosis, pneumonia, maternal and child health, mental health, and crippled children's services; (2) description and analysis of existing programs, facilities and services, federal, territorial, and private, available to meet these health problems, and the legal and administrative arrangements under which they operate; (3) preparation of immediate and long-range recommendations on (*a*) medical programs, hospitals, and other facilities, and services required to meet both general and specific health problems and (*b*) the organizational, administrative, and financial arrangements for federal, territorial, and nongovernmental responsibility and participation.

SOUTH CAROLINA

Cancer Grant.—According to the Columbia Medical Society of Richland County, S. C., Inc., the Richland County Legislative Delegation has sponsored an appropriation of $2,500 to be used by the Bob Seibels Jr., M.D., Memorial Laboratory, Columbia, in detection of cervical cancer among indigent patients. To qualify for this free service, the physician need merely give the name and address of the patient and state that he is making no charge for his services to her. Physicians desiring to make use of this cytodiagnostic method can obtain the blank forms and containers by calling the laboratory (2-2139).

TEXAS

University News.—The University of Texas Alumni Association has elected Dr. Thomas M. Oliver, Waco, president; Dr. Howard O. Smith, Marlin, president-elect; Dr. Kleberg Eckhardt, Corpus Christi, vice-president; and Miss Mildred Robertson, Galveston, secretary-treasurer.

Courses at Poliomyelitis Respirator Center.—Physical therapy procedures in the comprehensive treatment of the cardiorespiratory poliomyelitis patient are considered in relation to the physiological, psychological, and sociologic implications in the courses being given at the Southwestern Poliomyelitis Respirator Center, Jefferson Davis Hospital, Houston. Courses of four weeks will start on Aug. 3, Aug. 31, Sept. 28, and Oct. 26. For additional information write to Laura K. Smith, Supervisor of Education.

VIRGINIA

Dr. Nicholls Retires.—Dr. James B. Nicholls, superintendent and medical director of Catawba Sanatorium, recently retired after 36 years of service. Dr. Cecil C. Smith, who was formerly affiliated with a VA Tuberculosis Center in Mississippi, has been appointed as Dr. Nicholls's successor.

Dr. Martin Honored.—Dr. Walter B. Martin, Norfolk, President-Elect of the American Medical Association, was recently honored at a Portsmouth Naval Hospital dinner, presided over by Rear Adm. Sterling S. Cook (MC), U. S. N., new medical director of the hospital. Among the speakers who paid tribute to Dr. Martin were Dr. James L. Hamner, Mannboro, president, Medical Society of Virginia; Dr. Edward E. Haddock, mayor of Richmond; Dr. James M. Hutcheson, Richmond, member of the A. M. A. House of Representatives; Rear Adm. I. N. Kiland, U. S. N. commandant of the Fifth Naval District; and Dr. Clayton W. Eley, president of the Norfolk County Medical Society. The banquet was attended by 175 federal service physicians and a group of physicians from Norfolk, Portsmouth, Richmond, Charlottesville, and Suffolk.

WEST VIRGINIA

Hospital News.—Ground was broken at Beckley July 4 for a new 200 bed hospital, the first of 10 to be built for the beneficiaries of the United Mine Workers of America Welfare and Retirement Fund, of which John L. Lewis is chairman of the board of trustees. Among those participating in the ceremonies were Governor William C. Marland, formerly a coal miner, Mayor George B. Chambers, Beckley, Dr. John T. Morrison, Washington, D. C., assistant executive medical officer of the fund and president of the Memorial Hospital Associations, Dr. Frederick D. Mott, Washington, D. C., medical administrator of the associations, and Dr. Deane F. Brooke, Beckley, United Mine Workers area medical administrator. Four operating and two delivery rooms will be constructed in the hospital and an outpatient clinic in a separate building. X-ray, laboratory, and other medical service departments will serve both clinic and hospital patients. Buildings will be constructed to provide a limited number of apartments for nurses and technicians and to house the school of practical nursing and students' dormitory.

Personal.—The following physicians were recently elected to honorary life membership in the West Virginia State Medical Association: David F. Pauley, Jeffery, Charles W. Lemon, Lewisburg, Desausseur G. Preston, Lewisburg, Benjamin A. Smith, South Charleston, Ira Connolly, Parkersburg, and Joseph U. Kimble and Clare F. Shafer, both of Grafton.——Dr. Henry M. Brown, Belle, plant physician for E. I. DuPont de Nemours Company, who retired May 1 after 33 years' service, accepted appointment as county health commissioner of Clinton County, Ohio. His new offices are located at Wilmington, Ohio.——Dr. Leonard E. Neal, Clarksburg, has been elected president of the West Virginia University Alumni Association.——Former students of Gideon Stanhope Dodds, Ph.D., of Morgantown, who taught histology and embryology at the West Virginia University School of Medicine from 1918 to 1951, have arranged to have his portrait painted for the lounge of the new school of medicine.——Dr. Henry C. Huntley, Charleston, director of disease control, state department of health, since May 1, 1950, has resigned to accept appointment as medical consultant in the civil defense program, with offices in West Chester, Pa., where his address is FCSC, Region 2, High and Market Streets.——Dr. William R. Laird, founder and chief surgeon of the Laird Memorial Hospital in Montgomery, was awarded the honorary degree of doctor of humane letters by West Virginia Wesleyan College in Buckhannon at the 63rd annual commencement.

GENERAL

Muscular Dystrophy Grants.—The Muscular Dystrophy Associations of America, Inc., during the first half of 1953 have financially supported research programs in 25 institutions in the United States and one in France, expending a total of $280,802 for 27 projects. The largest grant, $61,495, went to New York Hospital, Cornell University Medical College, New York, for an investigation into the pathogenesis of progressive muscular dystrophy by Dr. Ade T. Milhorat.

Essays on Psychosomatic Medicine Invited.—The American Psychosomatic Society, which will hold its annual meeting at the Jung Hotel in New Orleans, March 27-28, 1954, invites submission of titles and abstracts of papers for consideration for the program. The time allotted for the reading of each paper will be 25 minutes. The committee is interested in investigations in the theory and practice of psychosomatic medicine as applied to adults and children in all the medical specialties, and in contributions in psychophysiology and ecology. Abstracts should be submitted in quadruplicate, before Dec. 1, to Dr. George L. Engel, chairman, program committee, 551 Madison Ave., New York 22.

Director of Tuberculosis Education Appointed.—Dr. Julius Lane Wilson, Philadelphia, director of clinics and professor of medicine in the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis, University of Pennsylvania, and chief consultant to the Bureau of Tuberculosis Control, Pennsylvania Department of Health, has been named to the newly created post of director of medical education, medical section, National Tuberculosis Association. He will continue to devote part of his time to his work in Philadelphia. Dr. Wilson was formerly visiting physician of Charity Hospital of Louisiana and head of the section on chest diseases at the Ochsner Clinic, New Orleans. He has taught at Yale University School of Medicine, New Haven, Conn., and at Tulane University of Louisiana School of Medicine, New Orleans.

Society News.—At the annual meeting at the Lake Placid Club, Essex County, N. Y., the American Gynecological Society elected Dr. Richard W. TeLinde, Baltimore, president, Drs. Karl H. Martzloff, Portland, Ore., and Arthur H. Bill, Cleveland, vice-presidents, Dr. John I. Brewer, Chicago, secretary, and Dr. Robert A. Kimbrough Jr., Philadelphia, treasurer. The society will hold its 1954 annual meeting at the Homestead, Hot Springs, Va., May 20-22.——The following physicians participated in a panel entitled "Working Together for Healthier Mothers and Children" at the first annual meeting of the National Nursing Association in Cleveland, June 22: Dr. Benjamin M. Kagan, chairman, department of pediatrics, Michael Reese Hospital, Chicago; Dr. Nicholson J. Eastman, obstetrician-in-chief, Johns Hopkins Hospital, Baltimore; and Dr. Helen M. Wallace, director, bureau for handicapped children, New York City Department of Health.

Prize Essay Contest in Dermatology.—The American Dermatological Association will award cash prizes ($500, $300, and $200) for the best essays submitted for original work, not previously published, relative to some fundamental aspect of dermatology or syphilology. Competition is open to scientists generally, not necessarily to physicians. Manuscripts, typed in English with double spacing and ample margins as for publication, together with illustrations, charts, and tables, all of which must be in triplicate, are to be submitted not later than Dec. 1 to Dr. J. Lamar Callaway, Secretary, American Dermatological Association, Duke Hospital, Durham, N. C. Results will be announced before Jan. 1, 1954. The candidate winning first prize may be invited to present his paper before the annual meeting of the American Dermatological Association (April 13-17, 1954, at the Greenbrier Hotel, White Sulphur Springs, W. Va.), with expenses paid in addition to the $500 prize.

Mississippi Valley Contest Winners.—The Mississippi Valley Medical Society announces the following winners of the 1953 essay contest: Dr. Arthur H. Keeney, clinical instructor in ophthalmology, University of Louisville School of Medicine, has won first prize "for the best unpublished essay on a subject of practical and applicable value to the general practitioner of medicine." Dr. Keeney will present his essay "Grass Roots in the Prevention of Blindness" at the annual meeting of the society in Springfield, Ill., Sept. 24, and will receive a cash award, a gold medal, and a certificate of award. Second prize was awarded to Dr. Louis T. Palumbo, chief, surgical service, VA Center, Des Moines, Iowa, for his paper "Physiological Changes of the Upper Gastrointestinal Tract Following Combined Upper Gastrectomy and Vagus Resection." Dr. A. Henry Clagett Jr., VA Hospital, Wilmington, Del. ("Some Common Complications of Myocardial Infarction") and Dr. Walter M. Block, Cedar Rapids, Iowa ("Infant Feeding with Homogenized Milk") tied for third prize.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

	July 11, 1953		
Area	Paralytic Type	Total Cases Reported	July 12, 1952 Total
New England States			
Maine	2	4	3
New Hampshire	..	2	..
Vermont	1	3	1
	1	6	6
	..	1	..
	2	14	2
Middle Atlantic States			
New York	9	53	26
New Jersey	7	14	10
Pennsylvania	..	15	8
East North Central States			
Ohio	15	66	41
Indiana	..	17	5
Illinois	16	57	31
	9	34	19
	..	13	5
West North Central States			
Minnesota	13	36	17
Iowa	3	8	72
Missouri	9	24	5
North Dakota	..	..	..
South Dakota	..	5	15
Nebraska	4	13	35
Kansas	..	19	19
South Atlantic States			
Delaware	..	..	..
Maryland	5	6	2
District of Columbia	2	3	5
Virginia	17	39	13
West Virginia	9	21	17
North Carolina	20	76	11
South Carolina	4	8	..
Georgia	5	26	18
Florida	1	13	38
East South Central States			
Kentucky	10	18	18
	13	31	21
	8	23	13
	..	29	38
West South Central States			
	7	17	9
	14	36	60
	7	25	47
Texas	22	89	296
Mountain States			
Montana	..	1	5
	..	..	3
	..	1	..
	..	3	10
New Mexico	..	6	22
Arizona	3	9	7
Utah	..	3	..
Nevada	5	6	..
Pacific States			
Washington	..	7	18
Oregon	3	4	7
California	22	45	46
Territories and Possessions			
Alaska	3	5	..
Hawaii	2	2	11
Puerto Rico	1	1	2
Total	274	957	1,037

Skinner Memorial Lecture.—Friends of the late Dr. Edward Holman Skinner, Kansas City, Mo., are assembling a memorial fund, the earnings of which and parts of the principal, if necessary, will be used to defray the expenses of a physician to deliver the opening lecture each year at the fall conference of the Kansas City Southwest Clinical Society, which Dr. Skinner founded. The trust agreement provides for suitable use of any surplus funds by contributions to the medical libraries of the Jackson County Medical Society and of the University of Kansas Medical Center. No campaign or general solicitation will be made, but funds in any amount from friends of Dr. Skinner will be gladly received and only the name of the donor recorded in the book of donors. Checks should be sent to the Edward Holman Skinner Memorial Fund, % Traders National Bank, 1111 Grand Ave., Kansas City 6, Mo. The first Edward Holman Skinner Memorial Lecture, "Carcinoma of the Lung," will be delivered by Dr. Alton Oschner, New Orleans, on Sept. 28 as the opening feature of the 31st annual fall clinical conference of the Kansas City Southwest Clinical Society.

March of Dime Grants.—The National Foundation for Infantile Paralysis recently announced approval of new March of Dimes awards amounting to $2,283,384 to 21 universities, medical schools, hospitals, and organizations for the support of poliomyelitis research and professional education programs: $762,380 for research seeking methods for preventing the disease and developing improved methods of treatment and $1,521,004 for programs in professional education. In the latter classification, $334,108 was awarded for pilot studies "to integrate the concept and skills of complete medical rehabilitation" in the curricula of George Washington University School of Medicine, Washington, D. C., the University of Pennsylvania School of Medicine, Philadelphia, New York University College of Medicine, and Cornell University Medical College, New York. According to Mr. Basil O'Conor, president of the foundation, since 1938 the March of Dimes organization has provided 50 million dollars for studies of medical care problems, aid to professional education, and the support of polio research; an additional 148 million dollars was spent for treatment for patients requiring financial assistance.

Radiological Conference in Denver.—The Midsummer Radiological Conference of the Rocky Mountain Radiological Society will be held in the Lincoln Room, Hotel Shirley-Savoy, Denver, Aug. 20-22, under the presidency of Dr. H. Milton Berg, Bismarck, N. D. Dr. Edward J. McCormick, Toledo, Ohio, President of the American Medical Association, will be the speaker at an informal banquet Friday, 7:30 p. m., at which Dr. Kenneth D. A. Allen, Denver, will act as toastmaster. Other guest speakers and their first presentations include:

David G. Pugh, Rochester, Minn., Myelofibrosis and Myelosclerosis.
Merrill C. Sosman, Boston, Roentgen Studies in Patients with Mitral Disease.
Sven Roland Kjellberg, Stockholm, Sweden, Value of Heart Volume Determinations.
D. B. McGrigor, London, England, Reminiscences of 44 Years of Radiology in the British Army Medical Service.
Frederic E. Templeton, Seattle, Muscular Contraction Patterns in Certain Esophageal Conditions.
Vincent W. Archer, Charlottesville, Va., Protection of Radiological Personnel During Diagnostic Procedures.
John P. Caffey, New York, Pulmonary Cysts of Early Infancy: Their Natural Regression.

Thursday Dr. Berg and Dr. Lumir R. Safarik, president of the Denver Medical Society, will preside at the joint meeting with the Denver Medical Society, 8 p. m., following an informal guest speakers' dinner at 6 p. m. Dr. Sosman will serve as moderator for a film reading session with Drs. Archer, Caffey, Kjellberg, Pugh, and Templeton as collaborators.

DEATHS IN OTHER COUNTRIES

Prof. Dr. Friedrich Franz Friedmann, professor of tuberculosis at Berlin University, died at Monte Carlo, Feb. 19, at the age of 77.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Clinical Session, St. Louis, Dec. 1-4.
1954 Annual Session, San Francisco, June 21-25.
1954 Clinical Session, Miami, Florida, Nov. 30-Dec. 3.
1955 Annual Session, Atlantic City, N. J., June 6-10.
1955 Clinical Session, Boston, Nov. 29-Dec. 2.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, The Homestead, Hot Springs, Va., Sept. 10-12. Dr. William F. Mengert, 2211 Oak Lawn Ave., Dallas, Texas, Secretary.

American Congress of Physical Medicine, Palmer House, Chicago, Aug. 31-Sept. 4. Dr. Walter J. Zeiter, 30 North Michigan Ave., Chicago 2, Executive Director.

American Dietetic Association, Los Angeles, Aug. 24-28. Miss Ruth M. Yakel, 620 N. Michigan Ave., Chicago 11, Executive Secretary.

American Electroencephalographic Society, Commander and Continental Hotels, Cambridge, Mass., Aug. 17-22. Dr. John A. Abbott, Massachusetts General Hospital, Boston 14, Secretary.

American Hospital Association, San Francisco, Aug. 31-Sept. 3. Mr. George Bugbee, 18 East Division St., Chicago 11, Executive Director.

American Society for Pharmacology and Experimental Therapeutics. Fall Meeting, Yale University, New Haven, Conn., Sept. 7-9. Dr. Carl C. Pfeiffer, 1853 West Polk St., Chicago 12, Secretary.

Biological Photographic Association, Hotel Statler, Los Angeles, Aug. 31-Sept. 3. Miss Jane H. Waters, 533 West 57th St., New York 19, Secretary.

Gerontological Society, Mark Hopkins Hotel, San Francisco, Aug. 25-27. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

Montana Medical Association, Northern Hotel, Billings, Sept. 17-20. Mr. L. R. Hegland, 104 North Broadway, Billings, Executive Secretary.

National Medical Association, Nashville, Tenn., Aug. 10-14. Dr. John T. Givens, 1108 Church St., Norfolk 10, Va., Executive Secretary.

North Pacific Society of Internal Medicine, Harrison, B. C., Sept. 18-19. Dr. Clarence C. Pearson, 1115 Terry Ave., Seattle 1, Wash., Secretary.

Regional Meetings, American College of Physicians:
North Dakota, Fargo, Sept. 12. Dr. Robert B. Radl, 221 Fifth St., Bismarck, Governor.
Arkansas-Oklahoma, Oklahoma City, Sept. 19. Dr. Wann Langston, 117 North Broadway, Oklahoma City 2, Governor.

Society of American Bacteriologists, Palace Hotel, San Francisco, Aug. 10-14. Dr. John H. Bailey, Sterling-Winthrop Research Institute, Rensselaer, N. Y., Secretary.

U. S. Chapter, International College of Surgeons, Waldorf-Astoria, New York, Sept. 13-17. Dr. Karl Meyer, 1516 Lake Shore Drive, Chicago 10, Secretary.

Utah State Medical Association, Salt Lake City, Sept. 10-12. Dr. Homer E. Smith, 42 South Fifth East St., Salt Lake City 2, Secretary.

Washington State Medical Association, Olympic Hotel, Seattle, Sept. 13-16. Dr. Bruce Zimmerman, 338 White-Henry-Stuart Bldg., Seattle 1, Secretary.

FOREIGN

Association of Surgeons of Great Britain and Ireland, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

Canadian Medical Association, Vancouver, B. C., Canada, June 18-22, 1954. Dr. T. C. Routley, 135 St. Clair Ave. W., Toronto 5, Ont., Canada, General Secretary.

Congress of International Anesthesia Research Society, Chateau Frontenac, Quebec, Canada, October 26-29. Dr. A. William Friend, 515 Nome Ave., Akron 20, Ohio, Chairman, Program Committee.

Congress of the International Association of Limnology, Cambridge and Windermere, England, Aug. 20-30. For information write: Professor G. C. Hutchinson, Osborn Zoological Laboratory, Yale University, New Haven, Conn., U. S. A.

Congress of the International League Against Rheumatism, Geneva, Switzerland and Aix-les-Bains, France, Aug. 23-29. For information write: Dr. W. Tegner, The London Hospital, London E.1, England.

Congress of the International Society of Angiology, Lisbon, Portugal, Sept. 18-20. Dr. Henry Haimovici, 105 East 90th St., New York 28, N. Y., U. S. A., Secretary.

Congress of the International Society of Surgery, Lisbon, Portugal, Sept. 14-20. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

Interim Meeting, Aero Medical Association, University of Brussels Medical School, Brussels, Belgium, Sept. 24-27. Dr. Andre Allard, Medical Director of SABENA, 145 Rue Royale, Brussels, Belgium, Secretary.

International Cancer Congress, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

International Conference on Thrombosis and Embolism, Basle, Switzerland, July 15-19, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

International Congress of Acupuncture, Kolpinghaus, Adolf-Kolping-Strasse 1, Munich, Germany, August 22-25. Dr. G. Bachmann, 29 Lilienstrasse, München 9, Germany, Organizer and Secretary.

International Congress of Electroencephalography and Clinical Neurophysiology, Boston, Mass., U. S. A., Aug. 18-21. Dr. Robert S. Schwab, Massachusetts General Hospital, Boston 14, Mass., U. S. A., Secretary-General.

International Congress of the European Society of Haematology, Amsterdam, Holland, Sept. 8-12. Dr. M. C. Verloop, Maliesingle 15, Utrecht, Holland, Secretary.

International Congress on Genetics, Bellagio, Italy, August 24-31. Prof. C. Barigozzi, Instituto de Genetica, Universita de Milano, 10 via Celoria, Milan, Italy, Secretary.

International Congress of Hippocratic Medicine, Evian, France, Sept. 3-6. Prof. P. Delore, 13, rue Jarente, Lyon, France, Secretary-General.

International Congress for History of Science, Jerusalem, Israel, August 3-7. Prof. F. S. Bodenheimer, Hebrew University, Jerusalem, Israel, President.

International Congress of Hydroclimatism and Thalassotherapy, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni Venac 1, Belgrade, Yugoslavia, Secretary General.

International Congress of International College of Surgeons, Sao Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U.S.A., Secretary-General.

International Congress of Logopedics and Phoniatrics, Zurich, Switzerland, Sept. 1-5. Dr. Deso A. Weiss, 115 East 86th St., New York 28, N. Y., U. S. A., General Secretary.

International Congress on Mental Health, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

International Congress of Microbiology, Rome, Italy, Sept 6-12. For information write: Dr. V. Puntoni, Citta Universitaria, Rome, Italy.

International Congress on Obstetrics and Gynecology, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

International Congress of Paediatrics, Havana, Cuba, Oct. 12-17. Prof. Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba, President.

International Congress of Psychology, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

International Congress for Psychotherapy, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

International Congresses of Tropical Medicine and Malaria, Istanbul, Turkey, Aug. 28-Sept. 4. Professor Dr. Ihsan Sükrü Aksel, Tunel Meydam, Beyoglu, Istanbul, Turkey, General Secretary.

International Congress of Zoology, Copenhagen, Denmark, Aug. 5-12. Dr. Anton F. Bruun, The University, Copenhagen, Denmark, Secretary General.

International Gerontological Congress, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

International Leprosy Congress, Madrid, Spain, Oct. 3-10. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

International Neurological Congress, Lisbon, Portugal, Sept. 7-12. Prof. Almeida Lima, Avenida do Brazil 53, Lisbon, Portugal, Secretary-General.

International Office of Documentation of Military Medicine, Rome, Italy, Oct. 14-18. Colonel Medecin Prof. A. Campana, Office of the Ministero della Difesa-Esercito, Rome, Italy, Secretary.

International Physiological Congress, Montreal, Canada, Aug. 31-Sept. 4. Dr. A. S. V. Burgen, Dept. of Physiology, McGill University, Montreal, Canada, Secretary.

International Psycho-Analytical Congress, Bedford College, Regent's Park, London N.W.1, England, July 26-30. Dr. Ruth S. Eissler, 285 Central Park West, New York 24, N. Y., Hon. Secretary.

International Society for the Study of Biological Rhythms, Basle, Switzerland, Sept. 18-19. For information write: Prof. Dr. F. Georgi, Neurologische Universitats-Poliklinik, Socinstrasse 55, Basle, Switzerland.

International Veterinary Congress, Stockholm, Sweden, Aug. 9-15. Prof. Axel Isaksson, Institute of Veterinary Medicine, Stockholm 50, Sweden, Secretary.

Journees Medicales, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geofroix, Colombes (Seine) France.

Latin American Congress of Obstetrics and Gynecology, Buenos Aires, Argentina, Oct. 26-31.

Latin American Congress of Otorhinolaryngology, Caracas, Venezuela, Feb. 21-25, 1954. Dr. Victorino Marquez Reveron, Centro Medico, Caracas, Venezuela, Secretary-General.

Pacific Science Congress, Quezon City and Manila, Philippines, Nov. 16-28. Dr. Patrocinio Valenzuela, College of Pharmacy, University of the Philippines, Quezon City, Philippines, Secretary-General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, Mexico, D.F., Mexico, Feb. 28-March 4, 1954.

Pan American Medical Women's Alliance, Beekman Towers Hotel, New York, N. Y., Sept. 24-Oct. 1. Dr. Ina Marsh, 140 Linwood Ave., Buffalo, N. Y., U. S. A., Registration Chairman.

Persian Gulf Medical Society, Dhahran, Saudi Arabia, Dec. 7-8. Dr. N. J. Conan Jr., Department of Internal Medicine, Arabian American Oil Company, Dhahran, Saudi Arabia, Secretary.

Sectional Meeting, American College of Surgeons, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

World Conference on Medical Education, British Medical Association House, Tavistock Square, W.C.1, London, England, Aug. 22-29. Secretariat: World Medical Association, 2 East 103d St., New York 29, N. Y., U. S. A.

World Congress of the World Confederation for Physical Therapy, London, England, Sept. 7-12. Miss M. J. Neilson, Chartered Society of Physiotherapy, Tavistock House, South, Tavistock Square, London, W.C.1, England, Secretary.

World Federation for Mental Health, Vienna, Austria, Aug. 17-23. For information write: Miss E. M. Thornton, 19 Manchester St., London, W.1, England.

World Medical Association, The Hague, Netherlands, Aug. 31-Sept. 7. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., Secretary-General.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alaska:* Anchorage and Juneau, Sept. 7. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Ex. Sec., Dr. Austin W. Matthis, Agana.

Montana: Helena, Oct. 5. Sec., Dr. S. A. Cooney, 214 Power Block, Helena.

New Hampshire: Concord, Sept. 9. Sec., Dr. John S. Wheeler, 107 State House, Concord.

New Mexico:* Oct. 12-13, Santa Fe. Sec., R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.

North Carolina: *Reciprocity*. Blowing Rock, Aug. 1. Sec., Dr. Joseph J. Combs, 716 Professional Bldg., Raleigh.

Pennsylvania: *Examination*. Philadelphia and Pittsburgh, July. Act. Sec., Mrs. Margaret G. Steiner, Box 911, Harrisburg.

Texas: Fort Worth, Nov. 12-14. Reciprocity applicants must be completed 30 days prior to the meeting date. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

Utah: *Examination*. Salt Lake City, July. Asst. Dir., Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City.

Puerto Rico: *Reciprocity*. Santurce, Aug. 4. Sec., Mr. Luis Cueto Coll, Box 9156, Santurce.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity*. On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

Colorado: *Examination*. Denver, Sept. 9-10. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 18.

District of Columbia: *Examination*. Washington, Oct. 19-20. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

Oklahoma: *Examination*. Oklahoma City, August 28-29. Sec., Dr Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: Portland, Aug. 29. Final date for filing application is Aug. 12. Portland, Dec. 5. Sec., Dr. Charles D. Byrne, University of Oregon, Eugene.

Texas: *Examination*. Austin, October. Chief Clerk, Mrs. Sandra Allen, 407 Perry-Brooks Bldg., Austin.

Wisconsin: *Examination*. Madison, Sept. 19. Final date for filing application is Sept. 11. Milwaukee, Dec. 5. Final date for filing application is Nov. 27. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

---

* Basic Science Certificate required.

DEATHS

Smith-Petersen, Marius Nygaard ⊕ Boston; born in Grimstad, Norway, Nov. 14, 1886; Harvard Medical School, Boston, 1914; from 1920 to 1930 assistant instructor of orthopedic surgery at his alma mater, where he was instructor from 1930 to 1935 and from 1935 to 1946 clinical professor of orthopedic surgery; specialist certified by the American Board of Orthopaedic Surgery; member and past president of the American Academy of Orthopaedic Surgeons; member of the American Orthopaedic Association, International Society of Surgery, International Society of Orthopedic Surgery, Boston Surgical Society, New England Surgical Society, and Phi Beta Kappa; honorary member of the British and Canadian orthopedic associations, Italian Society of Orthopaedics and Traumatology, and the Royal Medical Society of Edinburgh; fellow of the American College of Surgeons; decorated with the Grand Cross of the Royal Norwegian Order of St. Olav; Commander of the Royal Order of St. Olav (Norway); chief of the orthopedic service of the Massachusetts General Hospital from 1929 to 1946; received an honorary M.D. degree from the University of Oslo, Norway; developed the Smith-Petersen nail, a flanged nail for fixing the head of the femur in fracture of the femoral neck; died in Phillips House of the Massachusetts General Hospital June 16, aged 66, of coronary occlusion.

Barney, Louie Frank ⊕ Kansas City, Kan.; born in Cherokee, Kan., Nov. 19, 1876; Kansas City (Mo.) Medical College, 1903; emeritus associate professor of clinical surgery at the University of Kansas School of Medicine, Kansas City, Kan.; member of the House of Delegates of the American Medical Association in 1928, 1930, and 1932; past president of the Kansas Medical Society, Wyandotte County Medical Society, Kansas City Surgical Society, and the Kansas City Academy of Medicine; served as first and second vice-president of the Kansas City Southwest Clinical Society, of which he was one of the organizers; member of the Western Surgical Association and the Industrial Medical Association; fellow of the American College of Surgeons; member of the founders' group of the American Board of Surgery; a captain in the medical corps of the U. S. Army during World War I; affiliated with St. Margaret's Hospital, where he was past president of the hospital staff; member of the staffs of Bethany and Providence hospitals; died June 1, aged 76, of cerebral hemorrhage.

Charlton, H. Richard ⊕ Bronxville, N. Y.; born in New York City Nov. 8, 1877; Columbia University College of Physicians and Surgeons, New York, 1901; an Associate Fellow of the American Medical Association; veteran of the Spanish-American War and World War I; on May 16, 1944, received the second James Ewing award from the Westchester County Medical Society "as a token of recognition and commendation for distinguished service to the people and to the medical profession of Westchester County contributing to the understanding and control of malignant disease"; for many years affiliated with Lawrence Hospital; died May 14, aged 75, of asthma and chronic myocarditis.

Jacobson, Harry Pincus ⊕ Los Angeles; College of Physicians and Surgeons, Los Angeles, 1916; emeritus associate clinical professor of medicine (dermatology and syphilology), University of Southern California School of Medicine; member of the American Academy of Dermatology and Syphilology; commissioned a first lieutenant in the medical service corps, U. S. Army, from 1917 to 1922; served on the staffs of the Mount Sinai Hospital and Clinic, Los Angeles County General Hospital, and Cedars of Lebanon Hospital; author of "Fungous Diseases," 1932; died March 21, aged 64, of hypertension and cerebral hemorrhage.

Perry, Middleton Lee ⊕ Topeka, Kan.; born in Lancaster, Texas, Aug. 15, 1868; University of Tennessee Medical Department, Nashville, 1892; member of the American Psychiatric Association and the Central Neuropsychiatric Association; in 1924 member of the House of Delegates of the American Medical Association; in 1922 president of the Kansas Medical Society; at one time superintendent of the State Hospital for Epileptics in Parsons; for 30 years superintendent of the Topeka State Hospital, retiring from that post in 1948; affiliated with Stormont-Vail Hospital and St. Francis Hospital; died April 11, aged 84, of heart disease.

Abrons, Harry ⊕ Berkeley, Calif.; Columbia University College of Physicians and Surgeons, New York, 1909; member of the American Academy of General Practice; served on the staff of Herrick Memorial Hospital; died in New York June 4, aged 70, of angina pectoris.

Bartlett, Alexander George ⊕ San Francisco; University of California Medical School, San Francisco, 1926; assistant clinical professor of medicine at his alma mater; specialist certified by the American Board of Internal Medicine; served during World Wars I and II; affiliated with Franklin Hospital, where he died May 28, aged 58.

Baumgartner, Albert J., Elkhart, Ind.; Cincinnati College of Medicine and Surgery, 1894; died March 25, aged 85, of coronary vascular disease and arteriosclerosis.

Bayles, Lewis Eugene ⊕ Anderson, Ala.; University of Alabama School of Medicine, 1911; vice-president of the Farmers Bank; died in Florence May 23, aged 69, of coronary thrombosis.

Berresheim, Frieda K. Manfred ⊕ Louisville, Ky.; Medizinische Fakultät der Universität, Vienna, Austria, 1919; specialist certified by the American Board of Obstetrics and Gynecology; on the staffs of St. Joseph's Infirmary, Kentucky Baptist Hospital, and St. Anthony's Hospital, where she died March 22, aged 57, of hypertensive cardiorenal disease and coronary insufficiency.

Bowen, Berry, Seattle; University of Louisville (Ky.) Medical Department, 1890; died May 26, aged 85.

Bowman, J. Craig ⊕ Upper Sandusky, Ohio; Rush Medical College, Chicago, 1912; member of the American Academy of General Practice; past president and secretary of the Wyandot County Medical Society; served during World War I; major, medical reserve corps of the U. S. Army; affiliated with Wyandot Memorial Hospital, where he died May 6, aged 65, of coronary occlusion and mesenteric embolism.

Bryant, Frank Adolph ⊕ Colfax, Wash.; University of Louisville (Ky.) School of Medicine, 1911; past president of the Whitman County Medical Society; served during World War I; for many years county health officer; died April 15, aged 69, of heart disease.

Caskey, Walter Harold ⊕ Pittsburgh; University of Pittsburgh School of Medicine, 1909; for many years chief medical inspector for the city bureau of infectious diseases; died in Pittsburgh Hospital May 24, aged 67, of cerebral thrombosis.

Chace, Fenner Albert ⊕ Chevy Chase, Md.; Harvard Medical School, Boston, 1905; member of the Massachusetts Medical Society, American Academy of Dermatology and Syphilology and the New England Dermatological Society; formerly practiced in Fall River, Mass.; died June 4, aged 78, of chronic suppurative cholangitis, hypoplastic anemia, and carcinoma.

Chandeysson, Pierre Ismail, St. Louis; Washington University School of Medicine, St. Louis, 1901; physician and president of Chandeysson Electric Company; served in the French, British, and U. S. armies during World War I; died in the Alexian Brothers Hospital June 5, aged 77.

Clowes, Leo Clifford ⊕ Hinsdale, Ill.; Rush Medical College, Chicago, 1923; served as instructor in surgery at the University of Illinois College of Medicine in Chicago, where he was on the staff of the Cook County Hospital; on the staff of the

---

⊕ Indicates Member of the American Medical Association.

Hinsdale Sanitarium; drowned June 10, aged 62, when he was swept into deep water by swollen currents in the Fox River near Millbrook, while fishing.

Collins, Loren Leslie ⊕ Edwardsville, Ill.; born in Wilkes-Barre, Pa., Oct. 24, 1890; University of Illinois College of Medicine, Chicago, 1925; member of the American Trudeau Society; past president of the Mississippi Valley Trudeau Society; superintendent and medical director of the Madison County Tuberculosis Sanatorium; formerly medical director and executive of the La Salle County Tuberculosis Sanatorium in Ottawa; died in the Passavant Memorial Hospital, Chicago, May 1, aged 52, of heart disease.

Cox, Frank Edwin, Milwaukee; Milwaukee Medical College, 1910; died recently, aged 70, of cerebral hemorrhage.

Craft, Harry Leolyn ⊕ Ashfield, Mass.; University of Vermont College of Medicine, Burlington, 1906; an Associate Fellow of the American Medical Association; medical examiner for Franklin County; on the courtesy staffs of the Franklin County Hospital in Greenfield and the Cooley Dickinson Hospital in Northampton, where he died May 19, aged 74, of injuries received in an automobile accident.

Curtin, Thomas Hayes ⊕ New York City; Bellevue Hospital Medical College, New York, 1897; at one time on the faculty of the Fordham University School of Medicine and the New York Polyclinic Medical School and Hospital; an officer in France during World War I; affiliated with the Bronx Eye and Ear Infirmary and formerly with Manhattan Eye, Ear and Throat Hospital; died in New York Hospital June 3, aged 78, of injuries received in a taxicab accident.

Davis, William ⊕ Akron, Ohio; Ohio State University College of Medicine, Columbus, 1934; member of the American Academy of General Practice; served during World War II; died May 8, aged 46, of heart disease.

Dowling, Thomas J. Detroit; Detroit College of Medicine, 1904; died in the Grace Hospital April 24, aged 73, of cerebral hemorrhage.

Durant, Oswald Davidson, Alexandria, Va.; Meharry Medical College, Nashville, Tenn., 1926; died April 10, aged 57, of coronary occlusion and hypertension.

Evans, Alfred Harris ⊕ Chattanooga, Tenn.; University of Tennessee College of Medicine, Memphis, 1948; affiliated with Currey Clinic; died May 27, aged 31, of reticulum cell sarcoma.

Gehris, Oscar Thompson ⊕ Fleetwood, Pa.; Tufts College Medical School, Boston, 1898; died in St. Joseph's Hospital, Reading, May 28, aged 82, of postoperative shock.

Goldfarb, Walter ⊕ New York City; Yale University School of Medicine, New Haven, Conn., 1935; certified by the National Board of Medical Examiners; specialist certified by the American Board of Psychiatry and Neurology; fellow of the American College of Physicians; member of the American Psychiatric Association; served during World War II; died June 5, aged 43.

Gruhler, Jean Albert ⊕ Atlantic City, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1933; served during World War II; died in Ventnor, May 29, aged 45.

Haberer, Herman Joseph ⊕ Utica, N. Y.; College of Physicians and Surgeons, Baltimore, 1906; for many years county coroner; on the staff of St. Luke's Hospital; died May 30, aged 72, of congestive heart failure.

Haley, Michael Robert ⊕ Dayton, Ohio; St. Louis University School of Medicine, 1913; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; served in France during World War I; affiliated with St. Elizabeth Hospital and the Good Samaritan Hospital, where he died May 28, aged 68, of cerebral hemorrhage.

Hansen, Otto Anthon, Forest City, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1896; for many years member of the library board; served on the school board; died April 5, aged 88, of cerebral accident.

Hastings, John Charles, Orlando, Fla.; Rush Medical College, Chicago, 1902; died April 2, aged 78.

Hawkins, George Giles ⊕ Madera, Calif.; Washington University School of Medicine, St. Louis, 1905; served during World War I; died in the VA Hospital, Fresno, April 16, aged 72, of carcinoma of the lung.

Heard, Mary Kathrina, St. Petersburg, Fla.; State University of Iowa College of Medicine, Iowa City, 1905; member of the American Academy of Ophthalmology and Otolaryngology; died April 20, aged 83, of cerebral thrombosis.

Hearn, Arthur C., Baltimore; University of Maryland School of Medicine, Baltimore, 1897; died April 19, aged 79, of occlusion of the coronary artery and arteriosclerosis.

Hilt, John Leonard ⊕ Lineville, Ala.; Southern Medical College, Atlanta, 1889; died in Clay County Hospital, Ashland, May 24, aged 90, of bronchopneumonia.

Hoffman, Curtis Raymond ⊕ Richmond, Ind.; Indiana University School of Medicine, Indianapolis, 1925; served during World War I; affiliated with Reid Memorial Hospital; died April 22, aged 57, of heart disease.

Hughes, Herbert Andrew ⊕ La Mesa, Calif.; University of Oregon Medical School, Portland, 1939; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; died in San Diego March 20, aged 47, of rheumatic heart disease.

Hughes, Lawrence Jesse ⊕ Elgin, Ill.; Rush Medical College, Chicago, 1902; past president of the Kane County Medical Society; on the staffs of the St. Joseph Hospital and the Sherman Hospital, where he died May 20, aged 73, of coronary thrombosis.

Ison, Gideon Douglas, Bonita Springs, Fla.; University of Louisville (Ky.) Medical Department, 1908; died in Atlanta, Ga., April 5, aged 72.

Ives, Augustus W., Alexandria, Va.; Detroit College of Medicine, 1891; emeritus professor of neurology at Wayne University College of Medicine in Detroit; formerly practiced in Detroit, where he was affiliated with St. Mary's, William Booth Memorial, and Providence hospitals; died April 4, aged 92, of cerebral hemorrhage.

Jennings, John Buford ⊕ Peoria, Ill.; Chicago College of Medicine and Surgery, 1916; on the staff of the Proctor Hospital, where he died May 22, aged 62, of uremia and gastric hemorrhage.

Jordan, John Franklin ⊕ Peabody, Mass.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900; an Associate Fellow of the American Medical Association; died in Josiah B. Thomas Hospital May 21, aged 85.

Kermek, Ace, Brooklyn; Université de Paris Faculté de Médecine, France, 1899; at one time U. S. consular representative in Bulgaria; served in the Bulgarian Army during World War I; formerly on the staffs of the Lutheran, Unity, and Adelphi hospitals; died April 29, aged 82, of carcinoma of the descending colon.

Kistler, Milton S., St. Louis; Hahnemann Medical College and Hospital of Philadelphia, 1892; died April 1, aged 83.

Love, George Melvin ⊕ Rogers, Ark.; born in 1873; Kansas City (Mo.) Hahnemann Medical College, 1909; past president of the Benton County Medical Society; honorary life president of the Benton County Tuberculosis Association, of which he was president for many years; formerly secretary of the Homeopathic State Medical Board; served as president of the board of education and as a member of the city council; elected chief of the fire department on its reorganization, holding that position until his retirement; died May 30, aged 79.

Lukens, Philip Jefferson ⊕ Ambler, Pa.; Medico-Chirurgical College of Philadelphia, 1913; past president of the Montgomery County Medical Society and the Philadelphia Medical Club; died in the Abington (Pa.) Memorial Hospital June 6, aged 62, of coronary infarction.

McCormack, James L. ⊕ Newton, Ill.; St. Louis College of Physicians and Surgeons, 1892; served as county coroner; died May 30, aged 88, of pulmonary edema.

McCoy, Clem Dennin, Kenton, Ohio; Rush Medical College, Chicago, 1890; died in Hardin Memorial Hospital May 19, aged 88, of arteriosclerotic heart disease.

Martin, Frank DeWees ⊕ Bedford, Ind.; Indiana University School of Medicine, Indianapolis, 1914; past president of the Lawrence County Medical Society; served during World War I; died May 18, aged 62, of chronic myocarditis and myocardial degeneration.

Miller, Bodo Emanuel ⊕ Akron, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1911; served during World War I; died in the City Hospital June 3, aged 67, of carcinoma of the prostate.

Mitchener, James Samuel Sr. ⊕ Raleigh, N. C.; Johns Hopkins University School of Medicine, Baltimore, 1915; died March 18, aged 64, of cerebral hemorrhage.

Moore, Phoebia Gean ⊕ Mannington, W. Va.; Illinois Medical College, Chicago, 1903; died in Fairmont June 3, aged 81.

Morison, Oscar Noel ⊕ Charleston, W. Va.; University of Virginia Department of Medicine, Charlottesville, 1928; served as senior psychiatrist at the Essex County Overbrook Hospital in Cedar Grove, N. J., and the Hartford (Conn.) Retreat; died June 6, aged 51, of the effects of burns sustained two days previously in a fire at his home.

Nelson, Harry Emanuel ⊕ Dayton, Iowa; Rush Medical College, Chicago, 1893; past president of the Webster County Medical Society; served on the school board, as mayor, and as member of the library board; died in the Mercy Hospital in Fort Dodge May 16, aged 83.

Nuzum, John Weston ⊕ Chicago; Rush Medical College, Chicago, 1914; fellow of the American College of Surgeons; on the staff of the Augustana Hospital, where he died June 14, aged 62, of bronchopneumonia.

Ogden, Lee ⊕ New York City; Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany, 1913; affiliated with Gouverneur Hospital; died in Greenwich, Conn., May 12, aged 65, of coronary thrombosis with myocardial infarction.

O'Neil, Alfred Eugene ⊕ Miami, Fla.; University of Cincinnati College of Medicine, Cincinnati, 1938; member of the American Academy of General Practice; died April 15, aged 55, of coronary thrombosis.

Peacock, Lee Wallace ⊕ Highland Park, Mich.; St. Louis University School of Medicine, 1923; died in Highland Park General Hospital May 20, aged 57, of cerebral hemorrhage.

Post, Cecil Omar ⊕ Clarksburg, W. Va.; born in Clarksburg in 1888; College of Physicians and Surgeons, Baltimore, 1912; member of the American Academy of General Practice; past president, secretary, and treasurer of the Harrison County Medical Society; councilor of the Southern Medical Association; served two terms as a member of the council of the West Virginia State Medical Association; on the staffs of St. Mary's and Union Protestant hospitals; died suddenly, June 11, aged 64, of coronary thrombosis.

Quinland, William Samuel ⊕ Tuskegee, Ala.; Meharry Medical College, Nashville, Tenn., 1919; specialist certified by the American Board of Pathology; member of the National Medical Association, American Association of Pathologists and Bacteriologists, and the College of American Pathologists; formerly on the faculty of his alma mater; affiliated with VA Hospital, where he died April 6, aged 67, of myocardial infarction and arteriosclerosis.

Reneke, Edward Joseph ⊕ Skygusty, W. Va.; University of Tennessee College of Medicine, Memphis, 1929; mine physician for the U. S. Steel Company; died May 7, aged 48, of coronary occlusion.

Robinson, Finley A. ⊕ Blytheville, Ark.; Memphis (Tenn.) Hospital Medical College, 1904; died March 26, aged 72, of coronary thrombosis.

Romano, Joseph James ⊕ Coral Gables, Fla.; Tufts College Medical School, Boston, 1929; served during World War II; on the staff of the VA Hospital; died March 26, aged 50.

Rosensohn, Meyer ⊕ New York City; Columbia University College of Physicians and Surgeons, New York, 1909; assistant professor of clinical obstetrics and gynecology at Cornell University Medical College; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the American College of Surgeons; on the staff of the Bronx Hospital; died April 15, aged 71.

Sanders, John Gillis ⊕ Gulf Shores, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1913; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; served overseas during World War I; practiced in Foley and Mobile; served on the staffs of the Mobile Infirmary, City Hospital, and Providence Hospital in Mobile, where he died June 1, aged 61, of acute coronary occlusion.

Schroer, Harry T., Cincinnati; Miami Medical College, Cincinnati, 1902; died April 10, aged 72, of heart disease.

Schureman, Oliver Perry, Alhambra, Calif.; Washington University School of Medicine, St. Louis, 1934; served during World War II; died in Winston-Salem, N. C., April 28, aged 44.

Shagrin, Arthur W. ⊕ Cleveland; Western Reserve University School of Medicine, Cleveland, 1929; served during World War II; on the staff of the Mount Sinai Hospital, where he died May 23, aged 47, of myasthenia gravis.

Sheehan, George Augustine ⊕ Brooklyn; born in Lafayetteville, N. Y., in 1889; Fordham University School of Medicine, New York, 1913; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; clinical professor of medicine, State University of New York College of Medicine at New York City; affiliated with Norwalk (Conn.), St. Peter's, St. Mary's, Long Island College, and Kings County hospitals, and the Hospital of the Holy Family, where he died June 5, aged 63, of carcinoma of the pancreas.

Smith, Mary Hopkins, West Chester, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1896; served as treasurer of the Chester County Medical Association; died May 17, aged 88, of bronchopneumonia.

Smith, Waldo Emerson ⊕ Decatur, Ind.; Ohio Medical University, Columbus, 1906; died in the Adams County Memorial Hospital April 9, aged 81, of cerebral hemorrhage.

Stafford, Harry Howard, Dayton, Ohio; Ohio Medical University, Columbus, 1907; died May 30, aged 77.

Strain, Earle ⊕ Great Falls, Mont.; University of Pennsylvania Department of Medicine, Philadelphia, 1890; fellow of the American College of Surgeons; honorary life member of the Montana Academy of Oto-Ophthalmology; affiliated with Deaconess and Columbus hospitals; died June 1, aged 84, of heart disease.

Sumner, Roy S., Owensboro, Ky.; Louisville and Hospital Medical College, 1908; served during World War I; affiliated with Owensboro-Daviess County and Our Lady of Mercy hospitals; died recently, aged 69, of coronary occlusion.

Sybert, George Bradley, Ellicott City, Md.; Johns Hopkins University School of Medicine, Baltimore, 1923; died in St. Joseph's Hospital, Baltimore, April 27, aged 54, of retroperitoneal reticulum cell sarcoma.

Talbott, Thomas John ⊕ Lima, Ohio; Ohio State University College of Medicine, Columbus, 1943; served during World War II; for many years county coroner; on the staff of Lima Memorial and St. Rita's hospitals; died April 17, aged 37, of injuries received in an automobile accident.

Utter, John William, Anaheim, Calif.; University of California Medical School, San Francisco, 1910; formerly on the staff of St. Joseph's Hospital in Orange; died May 12, aged 80, of arteriosclerosis.

FOREIGN LETTERS

BELGIUM

Congress of Surgery.—The Sixth Belgian Congress of Surgery was held in 1952 at Brussels under the presidency of Dr. Bonzon. Two questions received special study.

The Pathology of the Diaphragm.—Van der Stricht discussed the morphology of the normal and the abnormal diaphragm, including tumors, hernias, and eventrations. Deloyers devoted his paper to the clinical study of diaphragmatic conditions. Harrington proposed classifying hernias in two groups, traumatic and nontraumatic. The following order of frequency of hernias has been noted: (1) esophageal hiatus hernias (60 to 80%); (2) traumatic hernias, direct or indirect, and those caused by necrosis; (3) hernias resulting from the absence of a part of the diaphragm; (4) hernias from pleuroperitoneal hiatus; and (5) subcostosternal hernias (of the foramen of Morgagni).

Hiatus hernias can be demonstrated radiologically. Most radiologists are able to demonstrate the lesion with the patient in a ventral position, preferably in right lateral decubitus position. Esophagoscopic examination is an indispensable adjunct in the diagnosis of diaphragmatic hiatus hernias.

Antithyroid Drugs and Thyroid Pathology.—Synthetic antithyroid substances constitute a great advance in antithyroid therapy. In some cases a definitive cure can be achieved with these drugs. The operative indications detailed by Bastenie and Flamand must be considered with this in mind. They conclude that medical treatment should be reserved for juvenile hyperthyroid disease, mild hyperthyroid disease, elderly patients, patients with asystole, and patients who have relapsed following surgical treatment. When adequate technical facilities are available, radioactive iodine should be used in treating patients over 55 years old. Other patients should be given antithyroid substances in doses varying with the stage of the disease.

An acceptable, though not ideal, indication for treatment by antithyroid substances, provided adequate control can be established, is the refusal of the patient to submit to operation. Estrogens, *p*-hydroxypropriophenone, and cortisone are useful weapons in certain special cases, but scarcely ever constitute the sole basis of treatment. In most cases of hyperthyroidism, subtotal thyroidectomy after scrupulous preparation, sometimes continued for several months, remains the treatment of choice. Preparation with thyroid-inhibitors, especially propylthiouracil, has increased the safety of surgical treatment to an astonishing degree and has made operation possible for many patients who would formerly not have been considered eligible for surgery.

The Fight Against Cancer in Belgium.—At the last *Journées Médicales* of Brussels, Drapier discussed the activities of the Belgian National Society for the Fight Against Cancer. The need for systematic organization of the fight against cancer must be presented to the whole nation every day, particularly since the nature of cancer remains mysterious. The author showed that the Belgian National Society for the Fight Against Cancer has fulfilled the first requirement for success. He pointed out that in 1950 there were 12,624 deaths due to cancer, 2,943 to pulmonary tuberculosis, 794 to other forms of tuberculosis, 98 to syphilis, and 24 to poliomyelitis. The society is making an appeal for the facilities that are indispensable for correct care of cancer patients, so that the four university centers may be properly supplied. It has a library, which makes it possible for all physicians to inform themselves on any aspect of cancer. The speaker presented a budgetary estimate and urgently requested the support of the authorities.

Control of Pharmaceutical Products.—Before the Belgian Society of Legal Medicine (March, 1953, session), the pharmacist Laurent lectured on the highly controversial question of the control of pharmaceutical products and explained the initiative taken by the professional association of Belgian pharmacists.

This association has signed a contract (unique in the world) with the principal drug manufacturers, assuming responsibility and guaranteeing prompt action in cases in which a product ought to be withdrawn from the market. In fact, from the official and governmental point of view, the manufacture of drugs is absolutely uncontrolled in Belgium; no guarantee, no license, and no proof of competence are required of the producer. The pharmacist assumes responsibility for the medicament he delivers. He should therefore be able to guarantee the composition of the products sold in his pharmacy as well as that of the prescriptions he compounds. Although he has a civil, penal, and ethical responsibility, it is not possible for him to test all the drugs. It is to meet this problem that control has been organized by the professional association.

Control can be exercised in connection with production; this is done by large firms employing numerous university-trained men to test the constancy of the value of their products. Control by a neutral and independent organization is also possible, and, finally, the pharmacist can make the tests at the time of dispensing the product. These private undertakings have less value than a supervised organization, however. Thanks to funds raised in professional circles, the pharmacists now have at their disposal laboratories provided with the most advanced equipment for chemical, microchemical, and bacteriological analysis. In addition to older methods of analysis, the most modern techniques can be employed. In addition, the organization appeals in certain cases to the university laboratories for assistance.

For the year 1952, the organization refused to guarantee 869 of the 1,855 products offered. An approved medication may be packed in a container bearing a registration stamp. This is, for the pharmacist, the physician, and the public in particular, a guarantee against inaccuracy in the declaration of the composition of the product, against imperfect and impure products, and against the inclusion of unmentioned drugs.

The Reform of Sickness Insurance.—A conflict has been in progress between the authorities, mutual benefit societies for medical care, and the medical profession. After prolonged discussions, the parties have arrived at a provisional understanding by accepting a solution that repudiates the state-controlled public service and permits autonomous administration of the separate funds with variable premium quotas and benefits. The same conflict exists in many countries; numerous professional groups are interested in this question, which is really the center of the whole future of medicine. Since each experience in this field may have an instructive value and since these experiences are being multiplied in all countries, it may be useful to compare various points of view. The solution accepted at present in Belgium has, however, been received with little favor by physicians, who are, properly enough, jealous in defending their professional solidarity.

The following are the principal directives and the major characteristics of the sickness-insurance reform. The insurance organizations are obliged to furnish certain basic benefits for such diseases as cancer, tuberculosis, and poliomyelitis and for intervention or procedures requiring the services of specialists, but they can determine as they wish the provision of other medical services, especially in general medicine. Physicians may or may not agree to care for the insured at the official rates; if they do, they appear on public lists. If they take part in the program, they are relieved of responsibility for professional secrecy in relation to consultants and come under the technical control of the insurance organizations.

The solution arrived at may be considered quite liberal, inasmuch as the autonomy of the organizations is carried to its logical conclusion in the matter of financial responsibility. The first rule, as a matter of fact, is freedom of choice by the insured of the insuring organizations, which exist in numbers

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

corresponding to the various political and religious tendencies of the population. A National Fund for Sickness-Disability Insurance is charged with collecting the premium quotas and dividing them among the insuring organizations according to the duration of their policies and taking into account the salary, age, and sex of the insured, his family responsibilities, his professional field, and his residence, with consideration of objective evidence of unhealthy conditions in the region. A technical commission established by the administration defines the criteria of distribution.

To the funds derived from the quotas of the insured there has just been added an annual subsidy from the government, amounting in the general program to 16% of the revenue from the premium quotas allotted to the sickness-disability insurance. Nevertheless, the insuring organizations are responsible for administration of the funds. Their resources are to be available for financing services considered to have the highest priority, including major surgical procedures, obstetric care, hospitalization for over eight days, treatment of mental illness, cancer, tuberculosis, and poliomyelitis, provision of certain orthopedic apparatus and prostheses, certain radiological examinations, certain x-ray or radium treatments given by specialists, certain laboratory analyses, and finally certain neuropsychiatric benefits.

The receipts are also used to cover the administrative expenses and to finance, under conditions and at rates determined by the organizations, care other than that already listed, especially routine medical care (consultations and home calls from general practitioners or specialists, pharmaceutical supplies, preventive examinations, special care, and dental service). If, after this, the organization has a deficit, it may demand a supplemental premium from the insured.

The operation of the program is placed under the general control of the National Fund for Sickness-Disability Insurance, which acts through committees and councils. The committees are composed of delegates from the mutual benefit societies and persons belonging to the insuring organizations and representatives from the professional organizations of physicians and from the Ministries of Labor, Health, and Finance. In addition there is a medical council of physicians chosen by the insuring organizations, the professional organizations of physicians, and two physicians designated by the ministries of Labor and Health.

From the point of view of the practical accomplishment and operation of these services, the law prescribes the principle of free choice by the insured of his physician or his health institution. In the matter of fees, the compulsory benefits must be in accordance with the scales of honorariums and reimbursement fixed by the Ministry of Labor, which can modify them only on recommendation of the permanent committee. As for other services, they may be provided according to honorariums freely fixed by the practitioner, the rate of reimbursement being established by the insuring organizations according to their ability. The national fund publishes each year the list of practitioners agreeing to render priority services at the insurance rates to insured persons whose incomes do not exceed an amount fixed by decree. Professional secrecy is to be completely respected in principle. This does not prevent it from being completely effaced in the relations between practitioners and consultants. These last act as consultants, without being able to take the place of the physician in charge or to apply or impose the treatment they prescribe. They proceed in a friendly way and try to reconcile any differences that may arise.

Control of the operation is entrusted, not to the organization of physicians, but to a commission of medical discipline, on which there are, of course, physicians, but only in a minority. Furthermore, this commission has only a consultative role, since only the insuring organizations can establish the honorariums.

This scheme has been the object of protests from the Belgian Medical Federation, which emphasizes the fact that it is a caricature of sickness insurance, designed to serve as a springboard and means of recruitment for various political parties. So, again, the federation appeals to the medical profession to maintain unbroken solidarity.

ISRAEL

Convention on History of Medicine.—The third country-wide convention of the Society for the History of Medicine and the Natural Sciences was held recently in Tel Aviv. Twelve lectures were given on various topics relating to the history of medicine, chemistry, pharmacology, and theoretical physics. Three events formed the main background to the discussions. The first of these related to the false charges made against the Russian physicians, historicoscientific expression being given to this subject in lectures by Dr. S. Muntner in his review "Blood Libels Against Jewish Doctors in the History of Medicine" and by Dr. Dvorjetzky in his lecture "Scientific Papers by Jewish Doctors During the Period of the Holocaust." The second event was the seventh International Congress for the History of Science, due to meet in Jerusalem in August. Professor Bodenheimer gave some details on the progress of preparations for this congress, the first to be held in Israel. About 100 historicoscientific lectures are to be delivered at the congress. The third event was the organized registration of pharmacists in the society, in connection with which Dr. Yakar gave a lecture on "Pharmacy Until Its Complete Detachment from Medicine."

Prof. S. Bodenheimer also spoke on "Yehudah Abarbanel, Who United Italian Humanism with Jewish Tradition." Other lecturers at the congress included Dr. A. Goldstein "The Doctor in Our Ancient Literature," Dr. I. Seide "Medicine and the Natural Sciences in the Travels of Benjamin of Tudela," Dr. I. Leibowitz "Avraham Ibn Ezra's Book of Experiments," *Dr. Isaiah Leibowitz "The Problem of the Eternity of the Universe in the History of Scientific Thought,"* Dr. D. Margalith "Anatomy and Surgery in the Talmud," Dr. Z. Plashkes "Medical Historians of the Viennese School," and Prof. I. Calugai "Dates in the History of Chemistry Up to 1952."

Social Aspect of Food Rationing.—In a recent review on nutrition, Dr. K. Guggenheim, a lecturer at the Hebrew University, mentioned that for some time the influence of the austerity program on nutritional conditions of the population has been the source of grave concern in many responsible quarters. Therefore, interested circles looked forward expectantly to the report "Level of Nutrition in Israel, 1951," published by the Central Bureau of Statistics and Economic Research.

The 1,002 families investigated in the spring of 1951 represented a true cross section of the whole wage earning population. The statistical material on food consumption was submitted for analysis to Dr. Sara Bavly, head of the institute for Nutritional Guidance of the Ministry of Commerce and Industry. The main question to be answered was whether the nutritional status has been improved or worsened in recent years. Answering this question, Dr. Bavly compared her data collected in 1952 with those obtained in previous surveys. This comparison shows: (1) a steady increase in the consumption of milk and milk products, fruits, vegetables, and bread; (2) a fairly constant consumption of sugar, fat, and of meat and fish; and (3) low consumption of eggs in 1948 and 1950 and return in 1951 nearly to prewar level. Changes in the supply situation have created a shift within some of the major food groups. Israel is now eating more fish and less meat, more egg powder and fewer fresh eggs, more skim milk powder products, and more margarine and less butter than they did some years ago.

But the most important changes happened within the different economic groups. The consumption of milk and milk products in the higher economic groups rose by 43%, whereas that of eggs, and meat and fish, decreased by 31 and 54%, respectively. In the lower economic groups, however, the consumption of milk and milk products and of eggs increased by 127 and 24%, and that of meat and fish decreased by 38%. In 1946 well-to-do persons consumed 119% more milk and milk products, 141% more eggs, and 128% more meat and fish than those less prosperous. In 1951 the consumption of milk and milk products, eggs, and meat and fish by the highest economic group surpassed that of the lowest group by 35, 35, and 69%, respectively. This improvement of social justice in food distribution, accomplished by leveling out the extremes in consumption at both ends of the scale, is the result of the nutrition policy of the government (controlled distribution of essential foods, price control, subsidies for some basic foods, and special rations for pregnant women and children). This is one of the greatest achievements of the state and constitutes one of the major factors contributing to the improved health situation.

Two years have passed since the survey was conducted. The economic situation has worsened, the real income has decreased, and many thousands of wage-earners are unemployed. Since a survey of a large representative sample of the whole population cannot be carried out at short intervals, one has to rely on government statistics of the amounts of food that is marketed monthly. These monthly statistics include not only the food that goes through the usual channels to the average consumer but also the special rations for pregnant women, children, heavy workers, and sick persons, as well as the food delivered to restaurants, hotels, hospitals, institutions, and the army. The total of this amount of food divided by the total population indicates the per capita figure of marketed food. It is to be noted, however, that marketing figures may tend to underestimate somewhat the real consumption, because a part of the food consumed is derived from external sources. Assuming a more or less constant relation between marketing figures and real consumption, certain conclusions as to the present nutritional situation may be drawn after studying the following table, which summarizes the major food groups in grams per capita per day.

Food Groups	Consumption, Spring, 1951	Food Quantity, Spring, 1951	Food Marketed, 1952
Milk and milk products (milk equivalents)..	483	411	303
Eggs (fresh)................................	35	33	25
Meat and chicken (without bones)..........	20	26	12
Fish (without bones).........................	40	32	34
Bread, flour, legumes........................	344	388	403
Fats and oils................................	30	32	40
Sugar (including jam and sweets)..........	42	47	55
Fruits	484	308	248
Vegetables and potatoes.....................	256	280	372

This table shows a marked increase in the amounts of bread, fats, sugar, and vegetables marketed in 1952 above the figures for spring, 1951, and a considerable decrease in milk, eggs, meat, and fruits. These changes may partly be due to seasonal variations (increased production of milk, eggs, and citrus fruits in February and March); the increase in the marketing of bread may point to an increase in waste and its use as chicken feed; and the highly increased amounts of vegetables during 1952 are the result of the bumper crop of last year. But the most important feature of the change in 1952 is the considerable decrease in the supply of milk, eggs, and meat. In terms of nutrients, the supply of calories, iron, and vitamins may not have significantly changed during 1952, but the situation concerning animal protein and calcium is now worse. It is, therefore, most important to increase the milk consumption to the level reached two years ago, since milk and its products are the cheapest source of animal protein.

Public Health Courses.—Practical courses in public health, the newest branch of medical science, are to begin at the Hebrew University-Hadassah Medical School in the coming academic year. This was announced recently by Dr. K. Mann, director-general of Hadassah in Israel. Studies will be conducted at the local Hadassah medical center set up last January at Beth Mazmil, west of Jerusalem, not far from the site where the future Hadassah medical school will be erected. Education in public health is not limited to the diagnosis and treatment of disease but also considers the influence of the family background and the entire environment, together with its cultural, social, and psychological problems. Medical students who, within the framework of their studies, are to go out to work in the villages will study for two months at Beth Mazmil and will be engaged for another two months in practical work. After receiving their diplomas, they will each be responsible for the inhabitants, both sick and healthy, of 40 houses.

A staff consisting of a physician, two nurses, a social worker, and a health instructor has been appointed for every 200 families. The duties of the staff, besides individually treating every patient applying to them, concern caring for the state of health in families and in the general neighborhood and studying nutrition. Routine medical and physical examinations are given to all the inhabitants even when they are apparently healthy. The important point is that the same physician and the same nurse attend not only the same patient but his entire family. In cases of need, the entire Hadassah machinery is at the disposal of the inhabitants, and specialists visit the area at regular intervals to receive patients.

In addition, a 10 dönüm playing field and a club are to be established, as a means of developing health. There is close cooperation between the local council of the quarter, the Ministry of Welfare, and local schools. The medical center will also serve as an important place of research in the field of social sciences and psychology.

LONDON

Antibiotics and Whooping Cough.—The Whooping Cough Subcommittee of the Antibiotics Clinical Trials (Nontuberculous Conditions) Committee of the Medical Research Council has just published its report on the treatment of whooping cough with antibiotics (*Lancet* 1:1109 [June 6] 1953). It is based on the findings in 294 children, aged 0 to 5 years, admitted to hospital with uncomplicated clinical cases of whooping cough within 21 days after the onset of the earliest symptoms. Chloramphenicol was administered to 98 children, aureomycin to 96 children, and a mixture of lactose and quinine to 100 children (the control group). The drugs were all dispensed in cachets. The dosage schedule was as follows: aged 0 to 11 months, 1 gm. daily; aged 12 to 25 months, 1.5 gm. daily; aged 36 to 59 months, 2 gm. daily. The drugs were given twice daily in equally divided doses for the first seven days of the observation period. Each child was observed for 20 days. As the results with chloramphenicol and aureomycin were comparable, the two groups were combined and are referred to as the "treated group," except for consideration of complications and deaths. For analysis, cases were subdivided into early cases, symptoms for 1 to 8 days before treatment; intermediate cases, symptoms for 9 to 15 days before treatment; and late cases, symptoms for 16 to 21 days before treatment.

The average number of paroxysms per case per day was less at all stages in the treated than in the control group, but the difference was only statistically significant in the early cases, e. g., on the eighth day the average difference was 5.7 paroxysms (difference/standard error 3.2), whereas in the intermediate and late cases the difference was only 2 paroxysms in favor of the treated group. Again, in the case of the severity of the paroxysms the difference was most marked in the early cases, e. g., the proportion of early control cases in which the paroxysms were described as absent or mild increased from 22% in the first four day period to 29% in the fifth four day period, whereas in the treated cases the percentages increased from 17 to 66. The comment is made that "it appeared that the drugs influenced the severity of the paroxysms to a greater degree than they affected the number of paroxysms in the intermediate cases." On the 3rd and 8th days of observation, but not on the 1st, 2nd, and 11th days, the proportion of patients from whom Hemophilus pertussis was isolated was greater in the control group than in the treated group. During the observation period, 19 patients noted respiratory complications: 7 in the control group, 7 in the aureomycin group, and 5 in the chloramphenicol group. In addition, there were three fatalities: a 6-week-old infant died of bronchopneumonia in the control group, and a 7-month-old infant in the aureomycin group died in convulsions. In a 1-year-old child in the chloramphenicol group widespread collapse of the lungs developed, which proved fatal. None of the complicated or fatal cases occurred in patients treated within eight days of the onset of symptoms. Presumed toxic effects were noted in 28 cases: vomiting 19 (7 on chloramphenicol, 11 on aureomycin, and

1 control); anorexia 5 (3 on chloramphenicol and 2 on aureomycin); diarrhea 2 (both on chloramphenicol); redness of buttocks 1 (on aureomycin); urticarial rash 1 (on aureomycin).

The conclusion finally reached is that "the present study suggests that early recognition and early antibiotic therapy of whooping-cough may help to reduce the severity of the infection, but that little is gained from antibiotic treatment of cases in which even slight symptoms have been present for more than a week."

Cruelty to Children.—Under this title the Association of Children's Officers has just published a memorandum, which it has prepared in response to a request from a Joint Committee of the British Medical Association and the Magistrates' Association. This is an able review of a difficult and increasingly important problem. In reviewing the use made of the law in these cases, the association feels that the law might be used with greater flexibility. It deprecates the "present practice of almost automatically committing children to the care of the Local Authority, whenever an offence has been proved." It also considers that the parents convicted of a first offense, especially neglect, "might more often be given a severe warning that another conviction will result in a sharp term of imprisonment and then be sent home with their children on probation to try to do better in the future." An appeal is made for a wider use of the provision for placing children under supervision at home and for taking recognizances from parents. "If the parents have behaved so badly that the children are taken away, especially if the offence has been repeated, the parents should be required to make a very substantial contribution to their maintenance." One child under institutional care for 15 years may cost £3,000, and a single large family may cost well into five figures. "At present, many convicted parents are better off financially (and better off than their law-abiding neighbors) without their children than with them."

On the general question of remedies, the memorandum states that "a substantial reduction of ill-treatment and neglect can only be achieved by measures to promote an improvement in the spiritual state of the nation." The machinery for detecting and combating physical violence is considered to be adequate, and no extension of powers to enter private houses is required. The prevention of mental ill-treatment is "a much wider problem, and one on which a lead can only be given by the medical profession." The final conclusions of the memorandum may be axiomatic, but they are worth quoting as an admirably concise summary of a problem that is worrying Western civilization to an increasing extent:

"(a) The family (even when it consists of mother and child only) must be treated as a living organism and not split up into smaller units for the purpose of social action.

(b) There is no perfect substitute for the natural father and mother.

(c) The child has spiritual, mental and emotional needs, as well as physical ones.

(d) There is need for amendment of the law relating to parental responsibility.

(e) The removal of a child from his home is a dangerous and costly expedient which should only be resorted to after all other means of ameliorating his hardships have failed. The courts should insist upon the most exhaustive enquiries before removing a child from his parents."

Lind Bicentenary.—The University of Edinburgh has been paying due respect to one of its greatest medical sons by celebrating the bicentenary of the publication of James Lind's classical "Treatise on Scurvy." The celebrations included a symposium organized by the Nutrition Society, the participants in which included Dame Harriette Chick, Prof. H. A. Krebs, and Sir Edward Mellanby from Great Britain, Drs. R. M. Kark, C. G. King, and V. P. P. Sydenstricker from the United States, Prof. E. J. Bigwood from Belgium, Dr. H. Grounelle from France, and Dr. M. van Eckelen from Holland. The more formal part of the celebrations included the bestowing of the honorary degree of LL.D. on Surgeon Vice-Admiral Sir Sheldon Dudley, F.R.S., the distinguished holder of the office of medical director-general of the Royal Navy during the greater part of World War II, who also delivered the Lind oration, and a reception by the president of the Royal College of Physicians of Edinburgh. The concluding event was a dinner in which the menu consisted of foods especially rich in vitamin C, including scurvy grass as a garnish, adrenal capsules dressed with paprika, and parsley as a savory.

Addition to the Royal College of Surgeons.—In spite of her crowded program, Queen Elizabeth found time before her coronation to lay the memorial stone commemorating the extensions, which are creating such a metamorphosis in the buildings of the Royal College of Surgeons in Lincoln's Inn Fields. The occasion was a memorable one, carried out with all the pomp and colorful tradition of which the Royal Colleges can boast. A large number of the college buildings were destroyed in an air raid in 1941. The current building program is devised to make good the wartime losses and to extend the college. The work of rebuilding is being carried out in three phases, the first of which was the one commemorated by the visit of the Queen. Its major item is the building of the Great Hall, which will seat 700 persons. The heaviest loss the college sustained was the Museum, which lost three-fifths of its buildings and contents. As a result of a gift of £100,000 from the Wellcome Trustees, it is planned to erect three floors of museums above the Great Hall, each complete with exhibition rooms and workrooms. In line with these museums will be three floors of laboratories. Centrally placed in the college will be an extension of the Library, and connecting the old and new buildings will be the Exhibition Hall, where there will be facilities for the display of works of art, documents of interest, and other treasures of the college. The second phase of building will include the Nuffield College of Surgical Sciences, a residential college for postgraduate students, which will provide bedroom and full collegiate facilities for 90 students. It is named after Viscount Nuffield who has contributed £250,000 toward its cost. Above Nuffield College will be a department of anesthesia. The third phase of building will consist of the reconstruction of the southwestern part of the existing college, including the provision of a Fellows' Common Room. The whole, when completed, will constitute a noble and worthy home for English surgery. There are many who hope that it may even be a step toward the establishment of an Academy of Medicine representing all branches of British medicine and including all the Royal Colleges.

Responsibilities of General Practitioners.—In a foreward to the coronation issue of the *Practitioner* (June, 1953), which is devoted primarily to a symposium on "General Practice: Today and Tomorrow," the Minister of Health emphasizes the important role of the general practitioner. "The status of the general practitioner," he says, "depends essentially upon three things: the trust of his patients, the respect of his colleagues, and the means to do his job adequately. In the last resort all these depend on him but there is much that others can do to make them manifest and to help him in his arduous and responsible work. The hospital service can do much to help," and the minister emphasizes here that "the general practitioner has a right to expect to be treated as a colleague and an equal, an essential member of the team. He should have direct access to x-ray and pathological services for his patients, [and] he should also be made welcome in the hospital if he cares to accompany or visit his patient or to come on a consultant's round." The general practitioner, too, has his part to play by keeping up-to-date and ensuring that "the environment in which he sees his patients—his surgery, his waiting room and his equipment—are such as to inspire respect and confidence." The aim must be to break down the attitude that only in hospitals can the best treatment be obtained, "for there are many patients for whom hospital care is wrong and that of their own doctor right."

In thus epitomizing, in characteristically concise terms, the vital importance of an efficient general practitioner service the Minister has struck a note that badly required to be sounded. Far too many patients are being sent to hospitals, particularly as outpatients, who could be dealt with much more effectively by general practitioners. Now that conditions of service have been improved, it is to be hoped that general practitioners will be able to reorganize their practices so that they can once again become family physicians, and not merely the "clearing-house clerks" for a hospital that they have tended to become during these hectic and confused early years of the National Health Service. What is probably now required is some education of the public as to when, and when not, to consult their physicians.

MEXICO

Incidence of Primary Carcinoma of the Liver.—The high incidence of primary carcinoma of the liver in certain races or peoples (such as the Chinese and Bantus) and its association with liver cirrhosis, especially of the postnecrotic type, and probably with malnutrition, has been described by several investigators. In Mexico, where both liver cirrhosis and malnutrition are frequent, there had previously been no studies on the incidence of primary carcinoma. With the aim of obtaining definitive data about this problem, Drs. Sepúlveda, Rivera, and Rojas analyzed the reports of autopsies performed in the Hospital de Enfermedades de la Nutrición (Mexico City) from 1947 to 1951. Their results were published in the *Gaceta Médica de México* (84:147, 1952).

In the 500 autopsies 5 cases of primary carcinoma of the liver and 46 of secondary carcinoma were found. This would apparently give a very high incidence (1%) of carcinoma of the liver, but such a figure is not a true representation. The Hospital de Enfermedades de la Nutrición has a high proportion of patients with liver diseases, as is demonstrated by the fact that in more than a third of the cases in which autopsy was done the main disease was in the liver. Thus in 1,047 autopsies in the Instituto Nacional de Cardiología, where another type of disease is predominant, not a single case of carcinoma of the liver was found. Similar results were obtained by review of 93 autopsy protocols of the Hospital Militar (Military Hospital).

The authors point out the following etiological factors that should be considered: 1. Preexisting cirrhosis, mostly of the postnecrotic type, with its tendency toward cell regeneration progressing to an anarchic extreme due to unknown causes, would finally produce carcinoma. In four of the five cases studied, the association of carcinoma with postnecrotic cirrhosis was found. 2. Heredity may be a factor, since the authors observed primary carcinoma of the liver in two brothers. These two men are not included in this series, because they were private patients in whom autopsy was not performed. The diagnosis, however, was confirmed by biopsy. A past history of malnutrition or parasitosis of the liver was not found in the cases studied.

From the histological standpoint, four of the carcinomas were of the multiple nodule type and one was a cystadenocarcinoma. Microscopically three were classified as liver cell carcinomas, one as a cholangiocellular carcinoma, and one as a cystadenocarcinoma.

The average age of the patients was 46 years. It was pointed out, however, that the disease is found in persons of all ages; in the Hospital Infantil de México (Children's Hospital), two cases have been found in 691 autopsies, an incidence of approximately 0.3%. (The children were 17 months and 5 years old; associated cirrhosis was not found in these cases.) Three of the five patients studied were men and two were women.

The most frequent clinical pictures were (*a*) appearance of systemic symptoms and at the same time symptoms of a tumor of the liver in previously well persons and (*b*) the appearance of pain in the hepatic region, enlargement of the liver, and a rapidly unfavorable course in persons with cirrhosis.

The liver function tests showed dysfunction in all cases and generally revealed progressive and severe liver insufficiency. The sulfobromophthalein (Bromsulphalein) retention and the direct serum bilirubin tests were especially sensitive. In two cases a high alkaline phosphatase level was found. Although these findings are not specific and may be found in other diseases of the liver or the biliary tract, it is commonly accepted that carcinoma of the liver does not cause marked alteration in the liver function tests. The experience of the authors does not confirm this impression; on the contrary, as a rule, marked and progressive dysfunction was found.

The only way of making a positive diagnosis during the life of the patient is by laparotomy, since it permits a macroscopic inspection of the gland, a specimen of the tumor may be secured, and control of any possible hemorrhage is easy. Moreover, if the pathological diagnosis is made immediately and the neoplastic lesion can be excised, a radical operation may be carried out at the same time.

Liver carcinoma can be confused with cirrhosis, mainly of the postnecrotic type, and with secondary carcinoma of the liver. Less frequently it is confused with amebic abscess. The disease leads rapidly to death; the average survival in the authors' cases was six months after initiation of symptoms. Death was due to hepatic coma in four cases and in the other to cachexia due to cancer.

New University.—Until 12 years ago the subtropical state of Morelos had no institution of higher learning. At that time with economic conditions improving steadily, the Instituto Superior (a college with some but not all professional schools), was founded at the resort town of Cuernavaca, the state capital. Since then the quality of its studies has been improved and the number of students increased, paralleling the growth of the general population of the state.

Several months ago works were undertaken to transform the Instituto Superior into a university. Since every university is required to have a school of medicine, this new one will be the 14th in Mexico. The establishment of the new university was marked by a solemn ceremony at Cuernavaca on May 3, which was attended by representatives of other universities.

New Study Plan.—Many Latin American universities have been financially unable to carry out expansion programs commensurate with the rapidly increasing number of students applying for matriculation in the professional courses. The problem of heavily overcrowded classes, which tend to lower the professional quality of the graduate, must be especially guarded against in the faculties of medicine.

To combat this dangerous problem, a new study plan, adopted six years ago by the Faculty of Medicine of the University of Guadalajara, has proved a practical and efficient means of assuring the high quality of the graduate student and of maintaining or improving the desired standards of the medical profession despite limited physical and economic resources. As a result of the success of this plan, it is being studied for use in other Mexican and Latin American universities.

After careful studies of the curriculums of large and small universities in the United States, Canada, and Europe, the plan now in effect was adapted to conform to the physical and economic conditions of the Faculty of Medicine of this university. These considerations led to the decision to limit the first year matriculation to 75 students, 50 of these to be selected from among the graduates of the medical preparatory school of Guadalajara, 20 from other similar Mexican institutions, and 5 from foreign preparatory schools.

From these groups approximately 125 students with the highest scholastic rating are selected upon graduation from preparatory school. These students then undergo three examinations: (1) complete physical examination; (2) academic examination of three or more of the basic preparatory subjects; and (3) vocational aptitude examination, including psychological study.

The curriculum consists of four academic years and two years of practical work, which includes the study in the specialties, clinical work, and six months of social service. At the end of the six year period, the student's qualifications for a degree are further judged on the basis of the results of a final academic examination, a clinical examination, and the presentation of a thesis. Upon successfully passing these examinations, the student is given his diploma and doctorate, which officially entitles him to practice medicine. The practical results of this plan have proved especially gratifying in the clinic, where small, rotating groups of from 8 to 10 students readily demonstrate their careful preparation and a thorough comprehension of the basic studies.

CORRESPONDENCE

FOREIGN-TRAINED PHYSICIANS

To the Editor:—We are writing to applaud the statistical data on "Licensure of Foreign-Trained Physicians" in THE JOURNAL May 30, 1953 (p. 438). We wish, however, to stress the growing problem of what is to be done with the increasing number of graduates from unapproved foreign medical schools. Our organization, the National Committee for Resettlement of Foreign Physicians, has, since 1939, concerned itself with the equitable resettlement of qualified foreign physicians who are refugees from persecution abroad. Since the early days of Hitler, there has been a steady immigration of foreign physicians (except during the United States' participation in World War II) from many parts of the world. Our agency is the only one in the United States that is concerned with the resettlement problems of these immigrants. Between 1939 and 1942 we registered and rendered service to about 7,000 emigrant physicians, mostly from Germany and Austria. After World War II, a new wave of immigration began and consisted more and more of displaced persons and refugees from behind the Iron Curtain, the Near East, India, and China where conditions forced emigration.

We think that American physicians can point with pride to the prodigious achievement in the successful assimilation of more than 10,000 such immigrants in the past 15 years. Nowhere in the world has the immigrant physician been received or accepted on such a scale or with such friendship, even though many states raised barriers to their licensure when very large numbers came in a short period. Our committee believes firmly in tests of qualification designed to find the fit immigrant physician who can be of service to our people, especially in understaffed communities or the armed forces and, thus, add substantial numbers to our medical manpower. Screening to exclude subversives, evaluation of language and scientific aptitude, and securing first citizenship papers are desirable goals that we try to fulfill in giving advice and guidance.

Our committee receives dozens of requests each month for the services of well-trained foreign physicians to fill posts as interns, residents, admitting physicians, anaesthetists, and staff physicians in state hospitals for mental disease or treatment of tuberculosis. Our experience with foreign physicians indicates that they need a period of rehabilitation in American hospitals so they may learn American ways, improve their English, and find opportunity to fit into the community. It is heartening to see that 45 state boards now permit foreign-trained physicians to be examined under varying conditions. We believe that the requirement of full citizenship now demanded by 26 of the boards merely delays the resettlement of otherwise qualified persons for five years before they can apply for licensure in these states. This requirement penalizes both the needy community and the physician seeking to fill an empty post. The requirement that applicants file their intention to become citizens is reasonable, and the successful applicant with first papers should be issued his license with the understanding that he must complete his naturalization within five to seven years after issuance of his first papers.

Our committee is increasingly concerned about immigrants who are graduates of foreign medical schools that are not approved by the Council on Medical Education and Hospitals and the Executive Council of the Association of American Medical Colleges. There are hundreds of these graduates in the United States; some succeed in gaining admission to some state boards; others are barred, apparently permanently, and must seek institutional posts if they are to remain active in the medical profession. We believe that the recent ruling by the board of regents in New York State, requiring refresher courses in the basic and clinical sciences, is a reasonable step designed to add to the qualifications of such physicians and to test the candidates in this group. Such a course is now offered by the New York University-Post Graduate Medical School, and we are happy to report that during the first year those who were recommended for admission to the state licensing board by New York University did better on all examinations as a group than all other foreign candidates. If other medical schools with equal facilities would offer a similar course, the means would be provided for making better use of immigrant graduates of unapproved foreign medical schools. Since these persons are immigrants who have entered the United States legally, we believe that everything possible should be done to facilitate their assimilation in the medical profession, thus ensuring equal treatment as potential citizens of the United States. Theirs is a peculiar plight. They are the victims of their fate, not the architects. If they are not permitted to take licensing examinations, then both the competent and the incompetent are excluded without a test. With the present shortage of young physicians for institutional jobs, many of these persons are now in such posts, and many may be expected to continue to work as unlicensed, unregistered physicians in hospitals that cannot get fully qualified or certified persons. For these reasons, we believe that steps should be taken by state boards and medical schools to facilitate the retraining or the additional training of such persons in order to find the qualified among them and to exclude the unqualified.

ALEX M. BURGESS, M.D.
National Chairman
IRVING GRAEF, M.D.
Chairman, Medical Advisory Board
National Committee for Resettlement
of Foreign Physicians
15 Park Row, New York 38.

PLIGHT OF THE HOSPITAL

To the Editor:—To a degree the development of hospitals has paralleled the advance of civilization as a whole. First there was the provision of the bare necessities of existence. Then slowly the scientific aids and the comforts, which made life worth living but more expensive, were added and were followed by the need to conserve those advantages for those most in need of them. Many sciences have combined to evolve the modern hospital equipped with every device known to the healing arts and staffed with a wide variety of skilled workers. Drawn by such manifold advantages, growing numbers of persons go to the hospital confident that there they will receive the benefits that the experience of others has led them to expect.

Today, however, the demand for this high-geared and complicated service surpasses the supply of both facilities and personnel. If relief is not found soon, there will inevitably be congestion and delays and the threat of lower standards. The situation may be compared to opening all the water faucets in the hospital at one time. Pressure would drop to a trickle or fail completely and slow down all functions dependent on this vital element until the load was reduced to normal. In hospitals the problem is now one of control and of equalizing the load by avoiding unnecessary peaks and by eliminating all demands not indicated by calm professional judgment and an understanding of the problem of supply and distribution. Any past emphasis on luxury and convenience that has induced people to use modern hospitals must yield to priority based on medical necessity wherever facilities and services are overtaxed or understaffed.

Who is to control the demand and avert a possible crisis? It is not the management, which is busy supplying steam and plugging the leaks, or the public, which clamors for the scarce accommodations and skilled service. It is the author of the advances in medicine that require new gadgets and expensive technical help to operate them; it is the person who prescribes their use on his patients—the physician.

Every admission and discharge, every day's stay in the hospital, every medication or special diet given, and every procedure carried out during hospitalization is by order of the physician. His hand is on the spigot, and it is mainly to him that we must look for the conservation and the quality of what flows out of it. He, more than anyone else, can and must help by limiting to real necessities the resulting costs that inevitably find their way into a hospital's budget and then to the patient's bill. Since the so-called "ancillary services," all of which are rendered only on the physician's order, may account for 50% of all charges to patients, their effect on the cost of hospital care and the imperative need of conservation in their use are obvious. Hospital charges are based essentially on the total cost of operation divided by the units of service actually rendered. The nature of a hospital's work is such that the major part of its expense is fixed and economical operation thus depends on high utilization of facilities and services. As the stand-by cost of a hospital bed varies little whether it is empty or occupied, cooperation of the physician by scheduling admissions when beds are available and by giving advance notice of his discharges can be the most potent factor in stabilizing and controlling basic costs, as well as in increasing a hospital's capacity to serve both the public and the medical staff.

The health of the nation and the livelihood of the physician depend increasingly on the adequacy, efficiency, and solvency of hospitals. True, hospitals are prepared to deal with crises when they occur, but, to meet them, hospitals must have periods of rest and assurance of support, both internal and external, both material and spiritual, so they can replenish the vitality expended during their periods of strain and strengthen their appeal to urgently needed workers. At the 102nd annual meeting of the American Medical Association, Dr. P. D. White stated that the serious degrees of heart disease can be postponed, or even prevented, by the adoption of common sense measures, such as "avoidance of prolonged nervous tension and excessive overweight." Our hospitals will survive if an informed public and a considerate medical profession prescribe similar measures for the hospitals and see that they are scrupulously carried out.

Mr. F. Stanley Howe
478 Fairview Ave., Orange, N. J.

MECONIUM ILEUS

To the Editor:—I enjoyed the article "Meconium Ileus" by W. Foster Montgomery in The Journal (152:225 [May 16] 1953). Recently I had the opportunity to observe a similar case, and, although the patient eventually died because of the disease, two observations were made that may be of significance: (1) human bile, containing pancreatic juice, obtained from an adult with an indwelling T tube in the common bile duct, proved to be a very effective substance for irrigating the distal ileum and colon and (2) evidence suggested a definite defect in peristalsis that was characterized by active segmentation and reversed peristalsis but an inadequate forward propulsive peristaltic wave. If these observations are correct, the peculiar nature of the obstruction and the peculiar character of the inspissated meconium could reasonably be explained on this basis alone.

The patient was a 48-hour-old baby girl in whom, shortly after birth, all the signs and symptoms of small bowel obstruction developed. The diagnosis of meconium ileus involving the entire colon and over 75% of the terminal ileum was confirmed at operation. The narrow ileum and colon were approximately 5 mm. in diameter and contained typical, thick, tenacious, "bubble-gum-like" material. The bowel above this point showed progressive and tremendous dilatation. Because of the extent of disease, anastomosis or resection of the involved portion of the ileum and colon seemed unfeasible; therefore, a double-barreled ileostomy was performed in the hope that anastomosis or resection could be performed at a later date. During the postoperative period, both loops of the ileum and rectum were irrigated with bile obtained from the T tube of an adult who had recently undergone gallbladder surgery. Laboratory examination of the bile confirmed the presence of strong concentrations of pancreatic secretions. Irrigation of the loops with this material resulted in prompt digestion of the inspissated meconium. The intestinal material assumed a more normal and soft character; but, in spite of this, there was inadequate drainage through the ileostomy even though the stoma was patent and easily admitted the little finger. Repeated observations of the abdominal wall revealed marked peristaltic activity at all times, but the proximal ileum and jejunum remained distended up to a point a short distance from the ileostomy. Passage of a catheter immediately deflated the dilated loop of bowel. It was thought that even though peristaltic segmentation was present, the intestine lacked the ability to propel the intestinal material in a forward, or downward, direction. The baby's condition improved somewhat during the first week or 10 days after surgery but then gradually deteriorated. The infant died one month after surgery, probably from inadequate nutrition.

Because this condition is rare, no one has been able to accumulate a series of cases large enough to make adequate experimental studies. The relationship between meconium ileus and pancreatic insufficiency is well known; therefore, the use of whole bile containing pancreatic juice from a patient with a T tube in the common duct seems theoretically sound and in this case proved very effective in producing digestion of the inspissated meconium. Abnormalities in the parasympathetic or autonomic nervous system, such as an absence of the myenteric plexus in the ileum and an imbalance in the nervous control of the pancreatic secretions, have been described. As far as I can determine, the possibility that these infants have rather active peristaltic segmentation and reverse peristalsis but not adequate forward peristaltic action is a new one that deserves further thought and consideration.

H. M. Blegen, M.D.
L. R. Alderson, M.D.
G. H. Barmeyer, M.D.
The Western Montana Clinic
Missoula, Mont.

REPRINTS

To the Editor:—Through the facilities of The Journal I would like to present the following suggestions to publishers of all medical journals. Physicians interested in the development of a reprint file have found it rather difficult, in the cases of most journals, to contact the author of a particular article. This situation could be alleviated by including the address of the author either as part of the by-line or at the end of the article. A second suggestion is in connection with a better documentation of articles appearing in medical journals. Physicians who do not desire to keep a complete journal remove certain pages for filing. It is this group who would find it exceedingly helpful if the name, date, and volume number were part of the running head on each page. Some journals, such as the Journal of the American Medical Association, follow this practice, while others carry only the title of the article or the name of the author. For those who follow the literature closely and endeavor to keep current, these minor changes would save a great deal of time.

J. S. Felton, M.D., Medical Director
Oak Ridge National Laboratory
Post Office Box P, Oak Ridge, Tenn.

PROTEUS MIRABILIS

To the Editor:—The Proteus mirabilis has been recognized generally as a harmless strain. Some time ago, however, we performed a search for all the aerobic enteric bacteria strains found in the stools of sick infants under one year of age, who had diarrhea. In over 40 patients, each examined several times during the illness, the strain found was *Proteus mirabilis.* Recently, we suspected subacute bacterial endocarditis in a 70-year-old woman. Cultures from her blood, urine, and feces showed that P. mirabilis was present. No other strains were found. We believe, that this strain was the cause of the death of the woman.

Josejf Weiser, M.D.
Rotshild Blvd., Hadera, Israel.

COUNCIL ON INDUSTRIAL HEALTH

This statement is a revision of similar material presented at the Conference on Preventive Medicine held in Colorado Springs in November, 1952, and has been prepared for publication at the request of the Council on Industrial Health.

C. M. PETERSON, M.D., *Secretary.*

THE NEED TO TEACH INDUSTRIAL HEALTH TO MEDICAL STUDENTS

Robert A. Kehoe, M.D., Cincinnati

There is an acute and constantly increasing need for more and better medical performance in American industry, with particular reference to the application of practical measures of preventive medicine. This need is greatest in small industrial plants. A great opportunity is now open to the medical profession, in that almost any contribution made by it toward the solution of the obvious hygienic problems of industry will greatly improve its performance and demonstrate its usefulness to society. This is even more significant because the employees of small industrial plants represent more than half of our total industrial population. Professional responsibility and prestige demand that the attention of physicians and medical educators be directed toward the problems of human health that derive from the most characteristic and insistent activity of modern life—technological industrial production. The productive functioning of this segment of our population, impaired as it is by the inroads of preventable disability and absenteeism, is a matter of great economic and social importance.

In view of the dearth of trained personnel in industrial medicine and the certainty that most of the talent made available in the near future will be absorbed by large industrial organizations, the following facts are noteworthy:

1. Medical service in the small industrial organizations of the country will be provided by physicians engaged in general practice. 2. If such service is to include preventive measures to any extent, the practitioner of medicine will have to be familiar with the principles and techniques of preventive medicine as these apply to industrial employees and their environment.

It is not to be supposed that undergraduate instruction in preventive medicine in medical schools shall suddenly become a means of producing well-trained industrial physicians in large numbers or of converting practitioners of medicine into industrial physicians. This is neither necessary nor desirable. From time to time critics and enthusiasts have argued the urgency of modifying and expanding the undergraduate medical curriculum by the introduction of various types of highly specialized disciplines into the basic training of the physician. In general such proposals are opportunistic, illogical and naive; they are also unappealing to the educational profession, which, at its best, examines human and social requirements and values and undertakes to minister to them with an eye to history and human capacities and potentialities. What is urgently required is that the need for preventive medicine in an industrial society be recognized and presented to the student of medicine, that the opportunities for the exercise of the conventional skill of the physician in this direction be pointed out, and that the existence of a special field of practice, which requires specialized technical knowledge and skill, be made known. It is also important that a sufficient number of centers of medical education find means of making effective postgraduate training available for the physician who finds himself interested in or engaged in industrial medical practice along with general or specialized medical practice.

Instruction to undergraduates in preventive industrial medicine should be adapted intelligently to the needs of an industrial society by instructors who know the problems of industry. The means of teaching and the time at which it is done will depend upon the personnel and facilities available in the given medical school. The degree of emphasis should depend, to a reasonable extent, upon the comparative competence of the personnel and the facilities available for other types of instruction. In view of the need for effective instruction in occupational health, a responsible effort should be made in medical schools to provide adequate facilities and competent staff and to set aside some time for consideration of the principles involved. The relation of clinical medicine to occupational factors and disease must be taught, to be effective, in the clinical years of instruction. This can be done, when clinical material is available, by specialists in the field of occupational health who are also good clinical teachers, or it can be introduced into the general teaching of departmental clinicians who are familiar with industrial medical problems.

The principles and techniques of preventive medicine in industry in some medical schools, perhaps in most, may well be presented to the undergraduate medical student by the department of preventive medicine. Indeed, this seems the logical focal point for such instruction and for the catalysis of thought and planning necessary for the proper development of this subject in a medical center. The important asset here is a viewpoint toward preventive medicine. Beyond that, however, there is a mandatory requirement that persons be available who know the field of occupational health and are competent to practice in it. Otherwise there will be neither material for practical instruction nor an effective grasp of the methods through which pertinent principles are embodied into practice. Only rarely is the conventional teacher or department of preventive medicine found to be competent in this field. This basic requirement needs to be recognized, no matter what department is charged with final responsibility.

At the present stage of development, the nature and scope of instruction in its formal representation in the curriculum is relatively unimportant. What is important, as suggested previously, is a viewpoint and a steadfastness of purpose that will lead to the fulfillment of a professional responsibility. This responsibility can no longer be ignored by medical educators, if those so engaged hope to be regarded as responsive to their duty to society.

MEDICAL MOTION PICTURES

Surgical Repair of Direct Inguinal Hernia with Rectus Sheath Graft: 16 mm., color, silent, showing time 21 minutes. Produced in 1952 by and procurable on loan from Philip Thorek, M.D., 25 E. Washington St., Chicago 2.

This picture demonstrates in fine detail the technique for repair of a direct inguinal hernia utilizing a pedicled anterior rectus sheath graft, as described originally by Halsted. Numerous anatomic drawings have been used to amplify the already adequate operative sequences and descriptive titles. The operation itself is well presented, and all significant anatomy is adequately shown. The color photography is well done, and the titles are clear. The film can be recommended for surgeons, residents, and medical students.

Carcinoma of the Thyroid: 16 mm., color, sound, showing time 32 minutes. Prepared by R. Lee Clark Jr., M.D., University of Texas, Houston. Produced in 1951 by and procurable on loan from Davis & Geck, Inc., 57 Willoughby St., Brooklyn 1.

This film reveals a radical dissection of the thyroid gland and extensive block dissection of associated lymph nodes. The operation is performed on a malignant thyroid adenoma. The execution of the technique is good, the exposure adequate, and the extent of the procedure ample. In the beginning of the film, the part played by radioactive iodine is discussed. This is timely and worth while; however, there was no correlation between the subject matter being shown on the film and the discussion. This is not only annoying but confusing, since the theme of either one of the given subjects is lost. The photography is excellent. This picture can be recommended for surgeons, particularly those specializing in thyroid surgery.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Hospitals in General: Board's Right to Dismiss Practitioner from Staff.—The plaintiff physician filed suit for an injunction to restrain the defendant hospital from depriving him of the use of the hospital facilities and for damages due to such denial. From a judgment against him, the plaintiff appealed to the Supreme Court of Iowa.

The Sisters of Mercy of Council Bluffs, Iowa, was organized and incorporated in 1938, as a nonpecuniary corporation under the laws of Iowa. It is a private corporation and, as such, operates hospitals, schools, and other institutions, one of them being the defendant, Mercy Hospital in Des Moines. The hospital is privately operated but is open to the public and serves all persons without regard to race or creed. The staff consists of two classes, associate and active. In the first-named class are the younger and the newer members, who, after three years, become eligible to be active members and officers. The officers constitute an executive committee to act as a board of directors to confer and advise, in matters pertaining to the welfare of the hospital, with the Sisters governing board, which is always present at the meetings of the executive committee or staff. Members of the medical staff of Mercy Hospital are required to be members in good standing of the corporate body known as the Des Moines Academy of Medicine and Polk County Medical Society and competent physicians of good character, who conduct themselves in accord with professional and ethical standards, are well recommended, and are endorsed by two members of the Polk County Medical Board, or of the staff.

The plaintiff, after graduation from Loyola University School of Medicine in Chicago, and after completing an internship in the defendant hospital, was issued a license to practice medicine in Iowa in 1933. Two years later he made written application to Mercy Hospital for appointment to the medical staff of the hospital and was accepted. At that time he was a member of the Polk County Medical Society. He remained a member of the medical staff of the hospital for 10 years, although he was not a member of the Polk County Medical Society after 1938, having been dropped in that year for nonpayment of dues. In 1945, the plaintiff's wife sued him for divorce, and during the divorce trial charges and countercharges relating to adultery and sexual promiscuities were made and there was a great deal of publicity in the local press relating to all the facts of the case. On Feb. 5, 1945, the plaintiff's wife was granted a divorce decree. The next day the executive committee of the medical staff of the defendant hospital met with the Sisters governing board, and a motion was made "that a recommendation to the Governing Board be made that Dr. P. F. Natale be dropped as a member of Mercy Hospital Staff and that he not be allowed to bring patients to Mercy Hospital." The motion was carried without a dissenting vote of the members of the executive staff or of the governing board. No other recorded action was taken by the Sisters governing board.

According to the by-laws of the medical staff, any member against whom any charges of unprofessional conduct or by-law violation have been preferred shall be notified of such charges and shall have the opportunity of appearing before the executive committee in his own defense before final action is taken. There is no evidence, said the Supreme Court, that any charge was preferred against the plaintiff. He was not notified of any charge. He was not present before the executive committee. He had no opportunity of appearing in his own defense before the committee before final action was taken, or at any other time. There were no witnesses before the committee or at the meeting. There was, in fact, no hearing. The knowledge of the committee was based only on rumors they had heard.

The decisive factor in this action, said the Supreme Court, is the fact that the Sisters of Mercy is a private corporation and has operated Mercy Hospital as a private business. The fact that its services and facilities are available to the public does not make it a public corporation, whether for pay or as charity. It is a fundamental and generally accepted rule that courts will not interfere with the internal management of a private corporation. In accordance with this rule the power to manage and control a hospital operated by a private corporation includes the authority and power to exclude physicians from the privilege of practicing their profession in the hospital. Thus, being a private corporation, the Sisters of Mercy had the right to make rules and regulations respecting patients and physicians, and to conduct the hospital as they saw fit, as long as its acts or omissions were not fraudulent, illegal, *ultra vires,* intentionally negligent, or otherwise wrongfully injurious to another. One requisite to membership on the hospital medical staff, the Supreme Court continued, was that a physician be a member in good standing of the Polk County Medical Society. The plaintiff was not a member of this society on Feb. 5, 1945, when the staff made its recommendation, or on March 6, 1945, when the governing board notified him of his dismissal, and had not been a member for over seven years. The fact that he had been permitted to practice as a member of the staff during such period would not stop the corporation from dismissing him. His permission to attend his patients in the hospital and use its facilities in his practice was but a privilege, and not a right vested in him by contract or other obligation of the Sisters of Mercy. Neither, said the Supreme Court, does the fact that no charge was preferred against him by the executive committee of the staff, or by any one else, and that no hearing was had before the committee, or opportunity given him to make a defense, avail him in this action. The by-laws containing these requirements were by-laws of the staff and were not binding on the governing board. The fact that the plaintiff was not a member of the county medical society was sufficient in itself to effect his dismissal from the staff, so that if he had been afforded full opportunity to make a defense, it would have been of no aid to him.

Another requirement for membership on the staff was good character and conduct in accord with generally accepted moral standards. It was for the Sisters of Mercy, as a private corporation, through the governing board of Mercy Hospital, to exercise its discretion and to decide whether, because of the evidence in the divorce trial and its extensive publicity, the plaintiff then qualified under this requirement.

The failure of the plaintiff to meet either of these requirements for eligibility to the medical staff of Mercy Hospital, concluded the Supreme Court, sustains the decree of the district court. Accordingly, the judgment in favor of the defendant hospital was affirmed. *Natale v. Sisters of Mercy of Council Bluffs et al., 52 N.W. (2d) 701 (Iowa, 1952).*

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Dermat. and Syphilol., Chicago

67:239-344 (March) 1953

Systemic Disturbances in Recalcitrant Trichophyton Rubrum (Purpureum) Infections: Studies and Short Report on Therapeutic Experiments. S. Rothman.—p. 239.

Generalized Trichophyton Rubrum Infection Associated with Systemic Lymphoblastoma: Report of Three Cases. G. M. Lewis, M. E. Hopper and M. J. Scott.—p. 247.

Aqueous Solutions of Sodium Propionate with Chlorophyll as a Therapeutic Agent. S. M. Peck, E. F. Traub and H. J. Spoor.—p. 263.

Mechanical Trauma: Study of Its Role in a Group of Skin Diseases Reputedly Influenced by Trauma. A. R. McFarland.—p. 278.

Diseases Related to Light Sensitivity. B. M. Kesten and M. Slatkin. —p. 284.

Birthmarks in Infants. A. G. Pratt.—p. 302.

Experimental Studies on Sarcoidosis: Persistence and Survival of Inoculated Micro-Organisms. A. Rostenberg Jr., F. J. Szymanski, G. J. Brebis and others.—p. 306.

A.M.A. Arch. Ind. Hyg. & Occupat. Med., Chicago

7:187-274 (March) 1953

Industrial Hygiene in Britain. B. H. Harvey.—p. 187.

Exposure of Connecticut Tobacco Workers to Parathion. R. A. Schaefer and G. H. Vance.—p. 193.

Toxicological and Pharmacological Studies on Chlordane. A. M. Ambrose, H. .E. Christensen, D. J. Robbins and L. J. Rather.—p. 197.

Evaluation of Long-Term Radiation Exposures. D. A Holaday—p. 211.

Agents Diminishing Skeletal Accumulation of Lead. N. S. MacDonald, F. Ezmirlian, P. Spain and D. E. Rounds.—p. 217.

Examination of Heat Stress Indices: Usefulness of Such Indices for Predicting Responses of African Mine Laborers. C. H. Wyndham, W. van der Merwe Bouwer, H. F. Paterson and M. G. Devine.—p. 221.

Working Efficiency of Africans in Heat: Effect of Various Saturated Air Temperatures, Wind Velocities, and Rates of Work. C. H. Wyndham, W. van der Merwe Bouwer, H. F. Paterson and M. G. Devine.—p. 234.

Periodic Health Examinations. W. L. Cook Jr.—p. 241.

Improvements in Rapid Screening Method for Lead in Urine. W. W. Woessner and J. Cholak.—p. 249.

A.M.A. Arch. Internal Medicine, Chicago

91:283-416 (March) 1953

Corticotropin (ACTH) and Adrenal Hormones During Operative Stress in Endocrine Disease. L. H. Kyle, W. P. Walsh and P. D. Doolan. —p. 283.

Electrolyte Metabolism During Rice Diet: III. Serum Electrolytes in Patients with Severe Primary or Secondary Renal Disease. E. Peschel and R. L. Peschel.—p. 296.

Inhibitory Effects of Portal Cirrhosis of Liver on Prostatic Enlargement. H. H. Stumpf and S. L. Wilens.—p. 304.

Hematologic Studies of Irradiated Survivors in Hiroshima, Japan. Y. Yamasowa.—p. 310.

*Placental Blood Serum in Treatment of Rheumatoid Arthritis: Preliminary Report. M. Spielberg.—p. 315.

Paroxysmal Ventricular Tachycardia Treated with Intravenous Injections of Quinidine. L. E. January, H. E. Hamilton and D. W. Sinton.—p. 325.

Mechanism of Flutter and Fibrillation. D. Scherf, A. I. Schaffer and S. Blumenfeld.—p. 333.

Infectious Diseases: 18th Annual Review of Significant Publications. H. A. Reimann.—p. 353.

Placental Blood Serum in Treatment of Rheumatoid Arthritis.—Active rheumatoid arthritis in women often improves during pregnancy, and some investigators have used blood from pregnant or puerperal women or placental blood serum, in the treatment of rheumatoid arthritis. At Spielberg's clinic placental blood serum was used in 15 women, aged 26 to 29, with active rheumatoid arthritis. The serum was prepared as follows: Immediately after the birth of the baby, the umbilical cord was clamped and cut, and the placental blood was collected by letting it flow into the sterile collecting tubes of 60 ml. capacity. Stripping of the cord was avoided because this increased hemolysis. The amount of blood collected varied between 20 and 100 ml. and averaged about 40 ml. The blood was kept in a refrigerator overnight, and the supernatant serum was then pooled in a 500 ml. vacuum container. The pooled serum was centrifuged to remove red blood cells, and was Seitz-filtered and stored in the refrigerator. It was tested for sterility by aerobic and anaerobic culture, and a serologic test for syphilis was also done. The placental blood was not saved when the mother was Rh negative or had a history of syphilis, hepatitis, or jaundice. Different trial dosages, ranging from 5 ml. to 250 ml. and administered either intravenously or intramuscularly, revealed that optimal effects were obtained by giving 30 ml. intravenously daily for the first 14 days, 30 ml. three times a week for the next 2 weeks, then 30 ml. two times a week for 3 weeks, and finally 30 ml. once a week for one to three weeks. Placental blood serum produced a rapid, marked, and sustained improvement for six months in the systemic and local manifestations of rheumatoid arthritis in 10 of the 15 cases. The results were maintained without additional therapy, but further observation is required to determine the duration of this therapeutic result.

A.M.A. Arch. Surgery, Chicago

66:265-396 (March) 1953

*Recovery and In Vivo Survival of Human Red Cells: Studies of Red Cells After Storage up to Six and One-Fourth Month at Subzero Temperatures. I. W. Brown Jr. and H. F. Hardin.—p. 267.

Microbiologic Flora of Chronic Cutaneous Ulcers: In Vitro Sensitivity of Microbiologic Flora to Three Antibiotics, Penicillin, Streptomycin, and Bacitracin. E. E. Vicher, J. W. Soska and G. G. Jackson.—p. 283.

Ascending Erect Phlebography: Management of Chronic Venous Insufficiency of Lower Extremity. E. M. Colvin, J. F. Walker and H. D. Smith.—p. 292.

Intestinal Obstruction Resulting from Biliary Calculi (Gallstone Ileus). S. Shore, H. H. Jacob and J. A. Cannon.—p. 301.

Slowly Absorbed Tubocurarine Chloride in Orthopedics. E. G. Lipow. —p. 312.

Leiomyosarcoma of Duodenum: Report of Case and Summary of Literature. M. Weinstein and M. Roberts.—p. 318.

Appendices Epiploicae: Clinical and Pathological Considerations: Report of Three Cases and Statistical Analysis on 105 Cases. S. S. Fieber and J. Forman.—p. 329.

Diverticulitis of Ascending Colon. A. M. Vaughn and E. M. Narsete. —p. 339.

Effect of Hepatic Artery Ligation on Ascites Due to Laennec Cirrhosis: Report of Two Cases. J. C. Smith, R. W. McNealy and E. A. Zaus. —p. 344.

*Insidious Thrombosis of Aortic Bifurcation: Report of 35 Cases. P. Beaconsfield and J. Kunlin.—p. 356.

*Thrombosis of Aortic Bifurcation Treated by Resection and Homograft Replacement: Report of Five Cases. J. Oudot and P. Beaconsfield. —p. 365.

Vagotomy: Follow-up of 100 Cases. P. F. Partington, E. J. O'Malley, H. Rice and W. C. McCally.—p. 375.

Experimental Studies with Intra-Arterial Transfusion: Overtransfusion in Anemic Dog and Hypoproteinemic Dog. E. J. Beattie Jr., J. M. Keshishian, D. Adovasio and others.—p. 383.

Survival of Human Red Cells After Storage.—Although blood plasma can be preserved for long periods by freeze drying, it has thus far been impossible to preserve red blood cells for more than 21 or 28 days. Brown and Hardin now describe a new technique that will preserve red cells for many months. In this process the red cells are first dehydrated with glycerin and then stored at subzero temperatures. Prior to transfusion they are rewarmed and the glycerin is removed. Over 90% of the red cells treated in this way were recovered intact after storage at -70 C for up to 6¼ months, and approximately 64% of these cells survived normally after transfusion. Only 79% of one lot of red cells stored at -15 C for 50 days were recovered intact, and 47% of these recovered cells survived normally after transfusion. No immediate or delayed reactions were encountered when these stored cells were transfused. There was evidence that a large portion of the abnormal post-transfusion loss of stored cells was due to the incomplete removal of glycerin from some of the cells before transfusion. Other possible methods for the more efficient removal of glycerin have been discussed. These studies, with those recently reported by British workers, indicate that the use of glycerin and subzero temperatures may eventually permit prolonged preservation of red blood cells for transfusion purposes.

Insidious Thrombosis of Aortic Bifurcation.—Until Leriche in 1940 aroused interest in thrombotic obliteration of the aortic bifurcation, this condition was regarded as rare. Now it is realized that thrombosis of the terminal aorta begins insidiously and progresses for a considerable time unnoticed, at first producing narrowing and only later a complete obliteration. Thirty-five such patients were seen at a Paris clinic for peripheral vascular diseases in the eight year period between 1944 and 1951. The cause of the aortic thrombosis was arteriosclerosis in 28 cases, inflammatory arteritis in 3, thromboangiitis obliterans in 2, syphilis in 1, and trauma in 1. While the cause of insidious thrombosis of the aortic bifurcation varies, the final pathological picture is similar in all cases: There is a complete obliteration of the aortic bifurcation. The thrombus begins in one of two places: in one common iliac artery, spreading upward toward the aortic bifurcation and then invading both the aorta and the opposite common iliac artery, or in the aorta below the point of origin of the inferior mesenteric artery, spreading downward. In resected specimens and necropsy material, the thrombus appears to originate in the common iliac artery three times as often as in the inferior mesenteric artery. The symptoms are fatigue, pain and weakness in the lower limbs, and impotence, all progressing slowly for months or years. Clinical and oscillometric studies reveal absence of arterial pulsation in both legs, but slight oscillometric pulsation at the upper end of the thigh may be present when the collateral circulation is well developed. Pallor of the lower extremities is often noticeable, even when the leg is dependent. Generalized wasting of the legs is difficult to detect, because it is symmetrical, but when questioned the patient often states that his legs are becoming thinner. When a patient complains of fatigue, pain, or coldness in his lower extremities or of impotence and the femoral pulses are absent, thrombosis of the aortic bifurcation should be suspected. Symptoms in insidious thrombosis never come on suddenly as they do in saddle embolus at the aortic bifurcation. Early diagnosis and treatment are important. The choice of treatment is between (1) bilateral lumbar sympathectomy with resection of the aortic bifurcation, (2) bilateral lumbar sympathectomy alone, and (3) resection and grafting of the thrombosed aortic bifurcation with or without lumbar sympathectomy. In this series of 35 cases 7 patients were first seen when advanced trophic changes in the lower limbs were already present and only one was benefited by treatment. Four of the 28 patients who were seen early refused treatment. Of the 24 who were surgically treated, 2 died, 3 remained unchanged, 16 improved, and 3 became symptom-free.

Resection and Homograft Replacement in Thrombosis at Aortic Bifurcation.—According to Oudot and Beaconsfield, the ideal treatment for thrombosis of the aortic bifurcation is replacement of the obliterated segment of the aorta by a homograft. They have used this treatment with encouraging results in five cases during the last two years. Once the diagnosis of thrombosis of the aortic bifurcation is made and confirmed by an aortogram, three points must be considered before grafting is decided upon: (a) the general condition of the patient, (b) the patency of the large arteries of the thigh and calf below the block, and (c) the preparation of the graft. Resection and grafting of the thrombosed aortic bifurcation is a long procedure, and may produce severe shock. Hence, careful evaluation of the cardiac and renal functions before the operation is essential. The homograft used is removed from a cadaver under aseptic conditions not later than four hours after death. All branching vessels of the removed aorta above its bifurcation are carefully ligated. The graft is then well washed to remove all blood and clots. After this, the graft is preserved at 4 C in an isotonic solution to which penicillin and streptomycin and 10% blood serum have been added. The graft is not used unless numerous cultures are sterile. The operative technique of the resection of the aorta and of the anastomosis of the graft is described and the histories of the five patients are presented. Symptomatically, they have all much improved. The toe skin temperature increased; arterial pulsation and oscillometric readings returned, although they were absent in the lower extremities before the operation.

American Heart Journal, St. Louis

45:477-634 (April) 1953

Pulmonary Circulatory Dynamics in Mitral Stenosis Before and After Commissurotomy. L. Werkö, G. Biörck, C. Crafoord and others.—p. 477.
*Subendocardial Trauma Produced by Right-Sided Catheterization of Heart in Man. S. M. Sancetta, D. B. Hackel and R. B. Lynn.—p. 491.
Fluorodensography with Radiopaque Substance: New Method for Hemodynamic Investigation. G. Moros G., R. J. Neri and G. Villagordoa.—p. 495.
Electrocardiographic Mirror Pattern Studies: II. Statistical and Individual Validity of Heart Dipole Concept as Applied in Electrocardiographic Analysis. R. B. Levine, O. H. Schmitt and E. Simonson.—p. 500.
Electrostethography: III. Crystal Microphone Characteristics at Low Frequencies for the Study of Cardiodynamics. F. L. Dunn and W. E. Rahm Jr.—p. 519.
Electrocardiographic Diagnosis of Septal Infarctions. M. I. Rodriguez, A. Anselmi and D. Sodi-Pallares.—p. 525.
Diagnosis of Myocardial Infarction in Patients with Anomalous Atrioventricular Excitation (Wolff-Parkinson-White Syndrome). L. Wolff and J. L. Richman.—p. 545.
Histologic Studies of Internal Mammary Artery After Implantation into the Myocardium. S. A. Bencosme and A. Vineberg.—p. 571.
*Comparative Effects of 3-Hydroxy-2-Phenylcinchoninic Acid (HPC) and Aspirin on Acute Course of Rheumatic Fever and Occurrence of Rheumatic Valvular Disease. E. J. Clark and H. B. Houser.—p. 576.
Interrelationship of Digitalis and Potassium in Auricular Tachycardia with Block. B. Lown, N. F. Wyatt, A. T. Crocker and others.—p. 589.
Clinical Results of Oral and Parenteral Administration of 2-(N'p-Tolyl-N'-m-Hydroxyphenylaminomethyl) Imidazoline Hydrochloride (Regitine) in Treatment of Hypertension and an Evaluation of Cerebral Hemodynamic Effects. J. H. Moyer and C. Caplovitz.—p. 602.

Subendocardial Trauma Produced by Cardiac Catheterization.—The occurrence of subendocardial hemorrhage in a 39-year-old woman and right bundle branch block in a 59-year-old woman as a result of catheterization of the right side of the heart is reported. The first patient was catheterized for investigation of the hemodynamic changes incidental to the administration of high spinal anesthesia for cholecystectomy. On the first attempt to enter the tricuspid orifice, the tip of the catheter impinged high on the lateral wall of the right atrium. The patient died suddenly 28 hours after the cholecystectomy was terminated. At necropsy, death was attributed to atelectasis of the lungs. Petechial subintimal hemorrhages were observed in the right subclavian and innominate veins and in the superior vena cava; in the right atrium, on the anterolateral wall, there was a circular, solitary bright red subendocardial hemorrhage, which exactly matched in size the tip of the catheter used. In the second patient, on the first attempt to enter the pulmonary artery, the tip of the catheter impinged high against the medial aspect of the right ventricle. The catheter was withdrawn into the right atrium, and a 12 lead electrocardiogram was taken, showing a right bundle branch block. The subintimal and subendocardial hemorrhages described in the first patient were caused by trauma of the catheter. There was no known disturbance in the clotting mechanism of this patient. In the second patient, one may infer that a subendocardial hemorrhage in the region of the bundle of His may have been responsible for the right bundle branch block, which persisted for five days after catheterization. In neither patient was there evidence of heart disease. Subendocardial hemorrhages may occur as the result of cardiac catheterization, but they are probably uncommon and of importance only in that they may possibly be responsible for an occasional case of persistent conduction defect following cardiac catheterization.

Effects of HPC and Aspirin on Rheumatic Fever.—Of 68 patients with acute rheumatic fever, 34 were treated with probenecid (3-hydroxy-2-phenylcinchoninic acid) and the other 34 were treated with acetylsalicylic acid (aspirin). The total daily dose of probenecid was 20 mg. per kilogram of body weight. This total dose was divided into three equal doses and administered at hourly intervals. For the first 48 hours the total daily dose of acetylsalicylic acid was 1 grain (65 mg.) per 1 lb. (0.5 kg.) of body weight, with no total daily dose exceeding 150 grains (9.75 gm.). During the following five days the total daily dose was ⅔ grain per pound and for the following five weeks the dose was ½ grain per pound per day. The drug was given every 4 hours for the first 48 hours and every 6 hours thereafter. Both probenecid and acetylsalicylic acid were administered for a period of six weeks. Results showed that acetylsalicylic acid exerted a more favorable effect on the arthritis, fever, and erythrocyte sedimentation rate than probenecid. There was no difference between the two treated groups of patients in the course of acute carditis or in the incidence of significant murmurs 14 to 17 months after treatment was started. The duration of the acute illness appeared to be equal in the two groups. In the doses employed by the authors, acetylsalicylic acid appears to be preferable to probenecid in the treatment of acute rheumatic fever.

American Journal of Obstetrics & Gynecology, St. Louis

65:697-934 (April) 1953. **Partial Index**

Unruptured Interstitial Pregnancy. M. N. Hyams.—p. 697.
*Comparison of Low Cervical and Classical Cesarean Section Operations. F. H. Falls.—p. 707.
*Acute Adrenal Cortical Failure as Cause of Shock and Death. E. S. Taylor and L. L. Essig.—p. 720.
Effect of Estrogens and Other Steroids on Pituitary Gonadotrophins in Women. W. E. Brown, J. T. Bradbury and E. C. Jungck.—p. 733.
Clinical Significance of Misplaced Endocervical Tissue—Heteroplastic Endocervical Tissue. R. W. Mohler.—p. 748.
Production of ACTH in Patient Undergoing Gynecologic Surgery or Receiving Pelvic Irradiation. A. C. Barnes.—p. 758.
Newer Gynecology: Some of its Surgical and Anatomical Implications. C. M. Marshall.—p. 773.
Fate of Intravenously Injected Placental Extracts. E. W. Page, M. B. Glendening, L. Strei and K. G. Scott.—p. 789.
Further Observations on Serum Calcium and Phosphorus in Pregnancy. R. L. Newman.—p. 796.
Acute Renal Failure in Obstetrics and Gynecology. D. E. Cannell, F. E. Bryans and L. E. Horne.—p. 804.
Glucose Tolerance and Excessively Large Babies in Nondiabetic Mothers. C. J. Lund and W. H. Weese.—p. 815.
Effect on Sodium Excretion of Treatment Drugs Used in Pregnancy Toxemia. R. R. de Alvarez and W. F. Gabrio.—p. 833.
*Elective Induction of Labor: Is It Justifiable in Normally Pregnant Women. J. R. Willson.—p. 848.
Hepatic Failure in Pregnancy. F. R. Lock, R. L. Burt and T. N. Lide. —p. 859.
Bulbar Conjunctival Vascular Bed in Normal Pregnancy. R. Landesman, R. G. Douglas, G. Dreishpoon and R. E. Lee.—p. 876.

Comparison of Types of Cesarean Section.—Because he was not convinced that the low cervical cesarean section was a better or safer operation than the classical operation when both were undertaken in patients without gross infection, Falls started an experiment that took 26 years to complete. He operated upon a series of patients, alternating between the two operations. After 100 patients had been operated on, the results seemed so similar in the two series that it was decided that more operations would have to be done to make the figures statistically significant. He now is able to report on 500 operations. The conditions surrounding the operations were nearly identical. They were done by one surgeon unprejudiced in favor of either operation with sufficient experience in each operation before beginning this series to carry out the technique of both with equal facility. The operations were found to be equally difficult, and to produce approximately the same amount of postoperative morbidity, discomfort, and complications. In six out of seven patients who died, autopsy showed a normal postoperative uterus. These six cases showed disease probably incompatible with recovery whatever type of delivery had been used. In the remaining case a saprophytic infection of the uterus was noted, but the cause of death was given as postoperative pneumonia and secondary fibropurulent pneumococcic peritonitis. The common causes of death from cesarean section that could be attributed to the operation directly, such as shock, hemorrhage, anesthesia, or puerperal infection spreading from the operative site, were not seen in either series.

Acute Adrenal Cortical Failure as a Cause of Shock and Death.—In the first of the six cases described by Taylor and Essig, adrenal cortical insufficiency occurred when a masculinizing tumor of the adrenal cortex was surgically removed. During the postoperative period symptoms and laboratory evidence of adrenal cortical insufficiency appeared, and the patient died soon thereafter. Postmortem examination revealed atrophy of the remaining cortical adrenal tissue. The second patient had a course similar to that of the first following hysterectomy. This death was ascribed to the "hepatorenal syndrome"; however, further study convinced the authors that she died of adrenal cortical insufficiency. In the next two cases the adrenal cortical failure was associated with septicemia. A diagnosis of a Waterhouse-Friederichsen syndrome (adrenal cortical failure due to sepsis) was made. Both patients recovered in response to specific therapy. The eosinophil response to cortciotropin confirmed the diagnosis in one, and in the other the eosinophil count was suggestive of latent adrenal insufficiency. In the next patient shock developed 57 hours after hysterectomy. The signs and symptoms indicated acute adrenal cortical insufficiency. Treatment with adrenal cortical extract, cortisone, and desoxycorticosterone acetate produced recovery. A Thorn test for adrenal cortical insufficiency showed that this patient had impaired adrenal cortical function. The last patient had anterior pituitary cachexia, secondary to abruptio placentae and fibrinolysis. Adrenal cortical atrophy was demonstrated at autopsy; it was secondary to a lack of essential corticotropin stimulation from the anterior pituitary. The syndrome was recognized, but disagreement among consultants led to discontinuation of specific therapy; corticotropin and adrenal cortical substances should have been given. The authors feel that deaths from delayed postoperative shock hitherto ascribed to the "hepatorenal syndrome" or overwhelming sepsis may, in some instances, have been caused by unrecognized adrenal cortical insufficiency. Shock caused by adrenal cortical insufficiency should not be confused with shock due to hemorrhage, embolic disease, or atelectasis.

Is Elective Induction of Labor Justifiable?—It is Willson's impression that the mother and her child benefit less than the physician does by the unindicated induction of labor and that, aside from his convenience, little is accomplished by the procedure. At Temple University Hospital labor was induced in 180 of 9,667 deliveries (1.86%), but in only 50 was there no medical indication for the termination of pregnancy. The postpartum hemorrhage rate in induced labors was slightly higher than in spontaneous deliveries. The low fetal mortality in elective induction is to be expected, since the fetal loss at this stage of pregnancy is minimal under any circumstances. Analysis also proved that no more than 5 fetal deaths in full-term infants among a total of 9,667 deliveries might conceivably have been prevented by induction of labor. This suggests that it is seldom necessary. The author fears that approval by expert obstetricians, the supposed decrease in fetal mortality, and its convenience have led to the widespread use of induction of labor by physicians unqualified either to perform it or to manage the complications that might arise. He feels that rather than to approve the routine induction of labor in normal women because it does not add substantially to the risk for mother or child, the practice should be considered in the light of whether or not it is necessary. Although the increased emphasis on prenatal care and other worth-while aspects of obstetric practice has increased the demand on the physician's time, elective induction of labor will not solve this time problem. Since there is no proof that either fetal or maternal mortality is improved by induction of labor in normal pregnancy at term, Willson believes there is no justification for its use.

American Journal of Pathology, Ann Arbor, Mich.

29:185-368 (March-April) 1953

Experimental Viral Infections in Embryo and Fetus: Preliminary Notes on Pathologic Findings with Viruses of Psittacosis, Ectromelia, and Rabies. S. Scheidegger.—p. 185.
Phase Microscope Studies of Renal Glomeruli: Glomerular Deposits of "Hyaline" Substances. J. Churg and E. Grishman.—p. 199.
Factors Favoring Phagocytosis by Reticulo-Endothelial Cells Early in Inflammation. E. H. Tompkins and M. A. Grillo.—p. 217.
Effect of Methionine in Experimental Wound Healing: Morphologic Study. R. Perez-Tamayo and M. Ihnen.—p. 233.
Bronchopulmonary Venous Collateral Circulation with Special Reference to Emphysema. A. A. Liebow.—p. 251.
Morphologic Study of Canine Lungs After Ligation of Pulmonary Veins. J. P. Wyatt, D. R. Burke and C. R. Hanlon.—p. 291.
Fate and Pathologic Effects of Plutonium Metal Implanted into Rabbits and Rats. H. Lisco and W. E. Kisieleski.—p. 305.
Effect of X-Rays on Trichina Larvae. S. E. Gould, J. G. Van Dyke and H. J. Gomberg.—p. 323.
Bronchial Adenomas Arising in Mucous Glands: Illustrative Case. J. H. Ramsey and D. L. Reimann.—p. 339.
Adrenal Cortical Atrophy in the Dog: Report of Three Cases. W. J. Hadlow.—p. 353.
Hemoglobin as Tracer Antigen in Anaphylaxis. H. D. West, E. W. Chappelle, W. F. Clark and P. F. Hahn.—p. 363.

American Journal of Physical Medicine, Baltimore

32:67-138 (April) 1953

Wheelchairs and Wheelchair Management. M. Hoberman, E. F. Cicenia and E. Offner.—p. 67.
The Question of Tonus in Skeletal Muscle. H. J. Ralston and B. Libet. —p. 85.
Rehabilitation of Arthrotomised Knee. A. S. Abramson.—p. 93.
Pharmacology of Drugs Affecting Skeletal Muscle. L. O. Randall and L. M. Jampolsky.—p. 102.

American Journal of Psychotherapy, New York

7:1-212 (Jan.) 1953. Partial Index

Comparison of Patients' Reports on Psychotherapeutic Experience with Psychoanalytic, Nondirective and Adlerian Therapists. R. W. Heine. —p. 16.
Patterns of Neurotic Interaction: Study of Empathy and Enkinesis in Interpersonal Relationships. J. Ehrenwald.—p. 24.

Am. J. Tropical Medicine & Hygiene, Baltimore

2:173-346 (March) 1953. Partial Index

Study of Endamoeba Histolytica and Other Intestinal Parasites in Rural West Tennessee Community. D. E. Eyles, F. E. Jones and C. S. Smith. —p. 173.
Comparative Action of Selected Amebicidal Agents and Antibiotics Against Several Species of Human Intestinal Amebae. W. Balamuth. —p. 191.
Drug Effects on Metabolism of Endamoeba Histolytica; in Vitro and in Vivo Tests of Synergism. M. Nakamura, A. K. Hrenoff and H. H. Anderson.—p. 206.
Comparison of Starches Used in Culture of Endamoeba Histolytica. J. B. Michaelson, J. N. DeLamater and L. Talpis.—p. 219.
Continuous Propagation of Plasmodium Gallinaceum in Chicken Erythrocytes. C. R. Anderson.—p. 234.
Chemotherapy of Experimental Chagas' Disease with 30 Antibiotics. A. Packchanian.—p. 243.
Experimental Chemotherapy of Trypanosomiasis: III. Effects of Achromycin Against Trypanosoma Equiperdum and Trypanosoma Cruzi. R. I. Hewitt, W. S. Wallace, A. R. Gumble and others.—p. 254.
One Method for Pure Culture of Trichomonas Vaginalis. M. Magara, E. Amino and E. Yokouti.—p. 267.
Terramycin Treatment of Balantidiasis in Honduras. M. T. Hoekenga. —p. 271.
Salmonellosis in Man and Animals in Southwest Georgia. W. H. Stewart and T. DeCapito.—p. 273.
Improved Media for Vibrio Cholerae and Salmonella Used in Human Vaccines. W. Koch and D. Kaplan.—p. 279.
Effect of Cyanine Dye on Infection with Hookworm and Trichuris in Man. E. Pérez-Santiago, J. Oliver-González and C. J. Thillet.—p. 307.
Current Status of Insecticide Resistance in Insects of Public Health Importance. A. D. Hess.—p. 311.
Field Investigations on Use of Heavy Dosages of Several Chlorinated Hydrocarbons as Mosquito Larvicides. W. Mathis and K. D. Quarterman.—p. 318.

American Surgeon, Atlanta, Ga.

19:221-312 (March) 1953

Surgical Treatment of Thrombo-Embolic Disease Following Failure of Anticoagulant. R. C. Derbyshire.—p. 221.
Acute Head Injury: Review of 1,000 Cases. A. W. Ulin, H. L. Rosomoff, D. Berkowitz and A. K. Olsen.—p. 226.
Intracerebral Hematoma. R. F. Mabon.—p. 237.
*Tracheostomy: Its Role in Postoperative and Post-Traumatic Care. R. R. Shaw.—p. 246.
Development of Today's Concept in Treatment of Hyperthyroidism: Review. T. C. Davison and A. H. Letton.—p. 251.
Femoral Embolism Simulating Thrombophlebitis: Case Report. B. F. Benton.—p. 258.
*Acute Intestinal Obstruction: with Special Reference to Adhesions and Adhesive Bands. J. M. Parker.—p. 262.
Rectal Tube as Lethal Instrument. W. G. Cooper Jr.—p. 270.
Bleeding Gastric Ulcer Requiring Partial Gastrectomy in Patient Receiving Cortisone. G. A. Higgins and R. D. Rider.—p. 275.
Appendiceal Calculi. A. G. Yancey and T. L. Jackson.—p. 279.
Brown Electrodermatome an Invaluable Aid in Care of Major Burns. J. G. Webb, H. E. Dorton and D. M. Royalty.—p. 287.
Antibacterial Agents in Experimental Strangulation Obstruction. I. Cohn Jr.—p. 294.
Injury to Genitourinary Tract During Surgery. C. W. Bowman.—p. 298.
Diagnosis and Treatment of Neck, Shoulder and Arm Pain. A. Stowell, R. A. Hayne and D. B. Cook.—p. 302.

Tracheostomy in Postoperative and Post-Traumatic Care.—Many pulmonary complications will be prevented and lives will be saved if tracheostomy is done in patients with injuries to the trachea, bronchi, or chest, in patients who are unconscious or paralyzed, and in children following thoracic surgery. Incision in the midline exposes the tracheal fascia, and dissection of this fascia exposes the tracheal rings. The incision into the trachea should be made at least two or three rings below, never across, the cricoid cartilage. As soon as the opening has been made, a tracheostomy tube should be selected that is approximately one-half the diameter of the trachea. A small wick of gauze is placed along the tracheostomy tube to allow drainage from the tissues of the neck. A tight closure around the tracheostomy tube is not desirable, but two or three skin sutures are permissible if a long incision has been made. During the first few days the dressing should be changed daily. The inner cannula should be removed and cleaned every time the tracheostomy tube is aspirated. The cannula should not be left out of the tube except at the times of aspiration. The tube can be removed as soon as the reason for instituting the tracheostomy no longer exists. In chest injuries or after thoracoplasty, the tube should remain as long as paradoxical respiration is more than moderate; in unconscious or paralytic states, the tube should be left in place until the condition is relieved. Extreme care is necessary in removing tracheostomy tubes in patients who have bulbar poliomyelitis, particularly if there has been paralysis of the abductor laryngeal muscles. In many of these patients, permanent tracheostomies will be necessary.

Intestinal Obstruction Caused by Adhesions.—Of 81 cases of intestinal obstruction, exclusive of strangulated hernias, observed at the University of Oklahoma Hospitals, 47 were due to adhesions and adhesive bands. Parker describes the mechanism of obstruction produced by broad base adhesions and the treatment of such obstruction, pointing out that this type is usually responsive to intestinal intubation. A weighted tube, introduced into the small bowel, will relieve the open loop type of distention and, with subsidence of edema in the intestinal wall at the obstructed site, the acute occlusion is usually relieved. A two to four day trial of conservative therapy is justifiable in obstruction due to adhesions. Obstruction that occurs within the first three or four weeks following laparotomy should be treated by intubation, since the adhesions are pliable and stretching will relieve angulations of the bowel. The adhesive band, because of its strangulating capabilities, is much more dangerous than the broad-based adhesion. It may serve as a connecting band between two loops of intestine; between a loop of intestine and the abdominal wall; between the mesentery and a loop of intestine; or between two leaves of the mesentery. Adhesive bands produce obstruction by one of four methods. Differentiation between the strangulating and nonstrangulating types of intestinal obstruction is of vital importance. The onset of a strangulating obstruction is sudden. The pain is continuous and severe. Vomiting is usually of an intractable nature, and, because the closed loop does not permit the passage of sanguinous content, the vomitus does not contain blood. Abdominal tenderness is usually quite marked, and rebound tenderness is a valuable diagnostic sign. Bowel sounds are diminished or absent early in the disease. Elevation of the pulse and temperature are confirmatory in determining loss of viability of the bowel in the slowly progressive types of necrosis. The presence of a palpable mass, which sometimes is not detectable until the abdomen is relaxed by anesthesia, is pathognomonic of strangulation. The roentgenogram is valuable in determining the site of the obstruction and in detecting signs of gangrene but must be correlated with the clinical picture. The following signs are helpful signs in diagnosis of strangulating obstructions: (1) the presence of a gas filled, closed loop; (2) demonstration of a fluid-filled loop, producing a soft tissue shadow (pseudotumor); (3) failure of gas-filled loops to rise in the erect patient; (4) loss of mucosal pattern in a distended loop.

Arizona Medicine, Phoenix

10:85-120 (March) 1953

Cor Pulmonale. O. A. Brines.—p. 85.
Broncho Moniliasis: Presentation of Case with Apparent Recovery. R. J. Antos.—p. 87.
Parent-Child Relationships. H. F. Shirley.—p. 89.

10:121-160 (April) 1953

Use of Cortisone in Patient with Active Pulmonary Tuberculosis. J. E. Farber and J. Ross.—p. 121.
Proper Treatment of Varicocele. R. A. Price.—p. 123.
Duties of Physicians to Each Other. W. W. Watkins.—p. 125.
Fluid and Electrolyte Balance. R. B. Garcia.—p. 130

Bulletin of the Los Angeles Neurological Society

18:1-58 (March) 1953

Stab Wounds of Spinal Cord. J. R. St. John and C. W. Rand.—p. 1.
*Electromyography as Adjunct in Neurological Diagnosis: Review. A. A. Marinacci.—p. 25.
Intracranial Tumors in Siblings: Report of Dissimilar Intraventricular Tumors Appearing Simultaneously in Sisters. B. Glass and K. H. Abbott.—p. 40.

Electromyography in Neurological Diagnosis.—The nerve and the muscle form a physiological unit that generates power resulting in voluntary motion. Electromyography analyzes the electrical activity of human muscles. This report explains the principles of electromyography in their application to lower motor neuron disease, and it is based on observations in 2,500 cases. A unipolar insulated needle with only the very tip exposed is used as the active electrode and is inserted into the muscle tissue. The reference electrode is placed adjacent to the active electrode either on the skin or subcutaneously if a needle is used; in addition, a ground electrode is placed on one of the patient's limbs. The reference and the active electrodes are led to the electromyograph high-gain, push amplifier, then to the loudspeaker, cathode-ray oscilloscope, and tape recorder. Thus, normal motor units, polyphasic motor units, fibrillation of denervation, and fasciculation action potentials can be heard, seen, photographed, and recorded. Marinacci discusses and reproduces recordings showing motor unit action potentials in normally innervated muscle and in denervated and regenerating muscles. Descriptions are given of the electromyographic observations on patients with different types of nerve lesions. Electromyography is of greatest value in peripheral nerve injury; this method is to nerve injury what x-ray visualization is to bone fractures. It will reveal complete interruption of the nerve, partial involvement, reversible physiological block, psychological block, and the status and degree of nerve regeneration. Motor units, either normal or abnormal, are generated only during voluntary efforts. Fibrillation of denervation voltages and fasciculation appear when the muscles are at rest. Electrical silence is present when a normal muscle is completely relaxed as well as when the muscle tissue has been replaced by fibrosis. Degenerative motor units and fibrillation of denervation denote lower motor neuron disease. These are seen in diseases which involve the anterior horn cells, roots, plexuses or peripheral nerves, whether the cause is infectious, traumatic, degenerative, neoplastic, vascular, toxic, or compression. Electromyography is a laboratory procedure, and its findings must be correlated with the clinical picture.

California Medicine, San Francisco

78:189-256 (March) 1953

Subtotal Gastric Resection for Peptic Ulcer: Preliminary Report of Variation in Technique. G. W. Nagel.—p. 189.
Preventable Diseases: The Scope of Public Health. H. Emerson.—p. 193.
Diabetes Mellitus and Diabetic Retinitis. J. W. Sherrill.—p. 197.
Mental Medication for Your 'Sick" Patient. J. B. Long.—p. 204.
Lymphoblastomas in Childhood: Cutaneous Manifestations. L. M. Nelson.—p. 208.
Regional Anesthesia for Office Procedures. C. F. McCuskey.—p. 213.
Development of Specialization in Allergy: Historic Review and View Ahead. S. H. Hurwitz.—p. 216.
What is New in Adoption. D. G. Tollefson.—p. 222.
Hyperinsulinism and Neuromuscular Disorders: Consideration of Association of Pancreatic Adenoma with Wasting States. R. W. Barris.—p. 224.
Stress Incontinence of Urine: Consideration of Etiologic Factors in Women. J. G. Moore.—p. 227.
Bronchogenic Carcinoma in San Diego County: Relation of Mortality Rates to Findings in Mass Chest X-Ray Survey. A. S. Churchill.—p. 232.

Connecticut State Medical Journal, Hartford

17:177-278 (March) 1953

Public Health Statesmanship. L. A. Scheele.—p. 179.
Plastic Operations on Organs of Genital and Urinary Tracts. O. S. Lowsley.—p. 187.
Suburban General Practice. R. B. Elgosin.—p. 193.
An Unusual Form of Congenital Heart Disease: Patent Ductus Arteriosus Associated with Coarctation of Aorta: Case Report. W. G. Leeds, P. R. McCurdy and W. E. Sherpick.—p. 197.

Diabetes, New York

2:85-170 (March-April) 1953

Infantile Diabetes. H. W. Farrell, A. M. Hand and A. L. Newcomb.—p. 85.
Growth and Development of Children with Diabetes Mellitus. R. L. Jackson.—p. 90.
Electroencephalogram of Patients with Diabetes Mellitus. J. L. Izzo, D. B. Schuster and G. L. Engel.—p. 93.
*Steroid Diabetes in Man: Development of Diabetes During Treatment with Cortisone and Corticotropin. J. J. Bookman, S. R. Drachman, L. E. Schaefer and D. Adlersberg.—p. 100.
Effects of Anterior Pituitary Extracts and of Growth Hormone Preparations of the Islets of Langerhans and the Pancreas. B. Kinash, I. MacDougall, M. A. Evans and others.—p. 112.
Effects of Environment on Diabetes: Study of Partially-Depancreatized Rats Exposed to Cold. D. J. Ingle, R. C. Meeks and L. M. Humphrey.—p. 122.
Incidence and Significance of Degranulation of Beta Cells in Islets of Langerhans in Diabetes Mellitus. E. T. Bell.—p. 125.
Modification of Gomori's Stain: Demonstration of Beta Granules in Islets of Langerhans. S. T. Nerenberg.—p. 130.
Metabolism of Mannitol and Sorbitol: Their Use as Sugar Substitutes in Diabetic Therapy. W. H. Olmsted.—p. 132.

Diabetes During Treatment with Cortisone and Corticotropin.—Bookman and associates found that diabetes developed in five patients who were treated with corticotropin and/or cortisone. The character and course of the diabetes was compatible with the features of steroid diabetes. All patients studied were predisposed to diabetes mellitus. In four, diabetes was known to be present in immediate family members, and in one there was a questionable history of glycosuria 10 years previously. None of the patients had fasting hyperglycemia or glycosuria while hospitalized prior to the institution of hormonal therapy. Diabetes disappeared in four patients after therapy was terminated, or after the dosage had been reduced to minimal maintenance levels. The fifth patient, who had transient glycosuria 10 years prior to treatment, had an abnormal glucose tolerance reaction one year after the cessation of hormonal therapy. Corticotropin seemed to have a more potent diabetogenic effect. Four of the patients received both hormones, but diabetes was observed only during the administration of corticotropin. The fifth patient, in whom diabetes developed during cortisone therapy, was suspected of having subclinical diabetes mellitus. It is suggested that impairment of carbohydrate tolerance developing in diabetics under stress situations may represent instances of steroid diabetes precipitated by overactivity of the pituitary-adrenal mechanisms and superimposed on pancreatic insular insufficiency.

Diseases of Chest, Chicago

23:357-476 (April) 1953

*Biopsy Techniques in Diagnosis of Intrathoracic Lesions: Including Lung Biopsy, Mediastinal Biopsy and Resection of the Deep Cervical Fat Pad and Its Contained Nodes; Report of 12 Illustrative Cases. C. F. Storey and B. M. Reynolds.—p. 357.
Detection of Cardiac Abnormalities by Mass Chest X-Ray Surveys. G. H. Gowen.—p. 383.
Variations in the Beta-Glucuronidase Activity of Tuberculous Pleural Effusions. S. H. Lawrence.—p. 390.
Mediastinal Emphysema Following Tonsillectomy. J. J. Silverman, T. J. Talbot and R. W. McClean.—p. 397.
Correlation of Carcinoma and Congenital Cystic Emphysema of the Lungs: Report of Ten Cases. E. Korol.—p. 403.
Pulmonary Emphysema and Fibrosis. S. S. Altshuler, F. S. Preuss, F. G. Drischel and J. E. O'Hare.—p. 412.
*Segmental Postural Drainage in Pulmonary Disease I. J. Kane.—p. 418.
One Stage Thoracoplasty Using an Adhesive Hemicast. W. G. Trapp.—p. 428.
Mechanism of Healing of Lung Cavities. H. A. Zaki and A. Rida.—p. 439.
Sarcoidosis: Treatment with Cortisone, ACTH and Urethane. M. F. Koszalka and A. C. Fortney.—p. 444.
Lipoid Cell Pneumonia: Report of Case. J. M. Miller and M. Ginsberg.—p. 452.

Biopsy Techniques in Intrathoracic Lesions.—There is consensus of opinion that ideal treatment of intrathoracic lesions requires an accurate histological diagnosis. While bronchoscopic and esophagoscopic biopsies have been widely accepted as means of establishing a definite diagnosis of pulmonary and mediastinal lesions, there are three other biopsy techniques available for this purpose that do not appear to have been generally utilized. These include (1) resection of the deep cervical pad and the lymph nodes that lie within it, (2) biopsy of a mediastinal mass by thoracotomy, and (3) direct lung biopsy by thoracotomy. Cases illustrating the use of each of these three methods are described. The first procedure was of assistance in the diagnosis of three cases of Hodgkin's disease, one case of Boeck's sarcoid, and one case of anaplastic carcinoma, which was probably bronchogenic and was metastatic to lymph nodes. The second method was useful in cases of mediastinal tuberculoma, Boeck's sarcoid, and sclerosing hemangioma. The third method was of value in the study of diffuse bilateral pulmonary lesions such as those of sarcoidosis, Löffler's syndrome, and alveolar cell carcinoma of the lung. These three methods were used by the authors in an appreciable series of cases and in almost every instance it was possible to establish a definite histological diagnosis. The procedures occasioned minimal morbidity and no mortality. They appear to merit more widespread use in the investigation of intrathoracic lesions posing difficult diagnostic problems.

Segmental Postural Drainage in Pulmonary Disease.—Segmental postural drainage consists of the selective application of the forces of gravity to the removal of fluid or semifluid material from the pulmonary parenchyma and from the bronchi in a specific bronchopulmonary segment or in several segments involved in such diseases as suppurative bronchopneumonia, lung abscess, and bronchiectasis. Twenty-one positions selected for segmental postural drainage and based on the direction of the draining tertiary bronchi of the various bronchopulmonary segments of the upper, middle, and lower lobes rather than on the surface anatomy or x-ray projection of these segments are recommended. These positions are applicable to most bedridden and debilitated patients, since they impose no strain or fatigue and require no special bed or apparatus. The coordination of postural drainage with useful adjuvants such as bronchoscopy, cough sedatives, antispasmodics, expectorants, and antibiotics is discussed. Some of the medical, surgical, and pediatric indications for segmental postural drainage are reviewed. Besides the therapeutic use of postural drainage, it may be employed also for prophylactic purpose, i. e., to prevent secretions or infectious material in the bronchi and lung from remaining in one area long enough to favor atelectasis, "drowned lung," bronchogenic spread of infection, or the complicating local and systemic effects of decreased oxygen diffusion.

Gastroenterology, Baltimore

23:347-532 (March) 1953

Treatment of Postprandial Distress Following Gastric Resection. R. F. Rauch and R. N. Bieter.—p. 347.

Effects of Cortisone and of Adrenalectomy on Secretion of Gastric Acid and on Occurrence of Gastric Ulceration in the Pylorus-Ligated Rat. R. B. Welbourn and C. F. Code.—p. 356.

Electrophoretic and Cholesterol Studies in Peptic Ulcer. H. A. Rafsky, C. I. Krieger, A. P. Boleman Jr. and J. C. Rafsky.—p. 363.

Gastric and Duodenal Tissue Alkaline Phosphatase in Peptic Ulceration. J. H. Fodden.—p. 372.

An Analysis of Tests Widely Used in Differential Diagnosis of Jaundice. W. E. Ricketts.—p. 391.

Studies on Mechanism of Alimentary Lysozyme Production—II. J. F. Prudden and E. C. Meadows.—p. 403.

*Dysphagia Produced by a Contractile Ring in the Lower Esophagus. F. J. Ingelfinger and P. Kramer.—p. 419.

Adrenal Stimulation in Dumping Syndrome. J. F. Pontes and D. P. Neves. —p. 431.

Effect of Gastric Operations on Loss of Fecal Fat in Dog. R. B. Welbourn, G. A. Hallenbeck and J. L. Bollman.—p. 441.

Effect on Digestion and Absorption of Excluding the Pancreatic Juice from the Intestine. G. J. Douglas Jr., A. J. Reinauer, W. C. Brooks and J. H. Pratt.—p. 452.

Effect of Pancreatic Duct Ligation and Induced Acute Pancreatitis on Serum Alkaline Phosphatase in Dogs. H. Shay, S. A. Komarov, H. Siplet and S. Lorber.—p. 460.

Effect of Emulsifiers on Fat Absorption in the Normal Young Adult. H. C. Tidwell and M. E. Nagler.—p. 470.

Observations on the Vitamin A Tolerance Curve as an Index of the Degree of Fat Absorption. C. W. Legerton Jr., E. C. Texter Jr. and J. M. Ruffin.—p. 477.

*Effect of Morphine, Demerol and Codeine on Serum Amylase Values in Man. R. B. Pfeffer, H. E. Stephenson Jr. and J. W. Hinton.—p. 482.

Dysphagia Produced by Contractile Ring in Lower Esophagus.—Ingelfinger and Kramer report on six men who complained of dysphagia. Previously their condition had been diagnosed as cardiospasm, inflammatory stricture, diaphragmatic hernia, or psychoneurosis, but these diagnoses could not be substantiated. In each instance, the dysphagia appeared to be caused by an excessively active constriction ring that produced intermittent occlusion of the esophagus. The dysphagia was described as a painful "sticking" sensation localized under the lower portion of the sternum. The patients believed that the offending food became stuck. The intensity of the distress varied, but was at times accompanied by considerable anxiety. The distress lasted from minutes to hours; then the patients felt as if the bolus was "working through" the obstructed area, leaving an aching pain that slowly subsided. During moderate attacks, the patients tended to drink water in an effort to force the retained food out of the esophagus into the stomach. During severer episodes, they were afraid of swallowing anything. The frequency of the attacks varied. In most instances the attacks were precipitated only if the patients ate certain types of food or if solids were swallowed hastily without proper mastication. The roentgenologic appearance of the constriction was qualitatively identical, but it varied in degree. The constriction appeared as a sharply demarcated negative shadow, a ring-like band 2 to 6 mm. in width, which intersected the lumen at a right angle to the long axis of the esophagus. It was located from 2.5 to 6 cm. above the junction of the esophagus and stomach. One of the patients was relieved of dysphagia following surgical removal of the distal 4 cm. of the esophagus. Another received benefit from dilatation of the lower esophagus. The other four are able to get along satisfactorily by chewing carefully and following dietary measures. The annular constriction was not caused by a fibrous band, inflammatory stricture, cardiospasm (or achalasia), or diaphragmatic hernia. The authors feel that if the claim of several anatomists is correct that there is a physiological sphincter existing in the esophagus 1 to 2 cm. above the diaphragmatic hiatus, the constriction ring may be identified tentatively as an overactive inferior esophageal sphincter.

Effects of Drugs on Serum Amylase.—The fact that analgesics alone or in combination with a pancreatic stimulant produce an inconsistent rise of serum amylase in normal patients as well as in those with disease of the pancreas is highly significant. If, besides masking physical signs in acute abdominal conditions, analgesics may also cause aberrations of serum amylase determinations, the diagnosis of acute pancreatitis will be made more difficult. To learn to what extent serum amylase values could be elevated by analgesics, 56 tests were performed on 12 patients without any history of gastrointestinal disturbance, alcoholism, or abdominal operations. An initial serum specimen for amylase determination was drawn at least eight hours after the last meal. Following this the subject received either 0.015 gm. of morphine sulfate, 0.010 gm. of meperidine (Demerol), or 0.09 gm. of codeine phosphate subcutaneously. One-half hour later 100 units of secretin diluted in isotonic sodium chloride solution was injected intravenously to stimulate pancreatic secretion. In another test 100 clinical units of secretin alone is administered as a control. In the final control test, morphine is given without being followed by any pancreatic stimulant. Serum amylase samples were drawn at 2, 4, and 6 hours after the initial stimulus. Patients took nothing by mouth during the entire period of the test. The authors found that apaprently two conditions must be present to produce an elevated serum amylase following the injection of an opiate: obstruction to the pancreatic ducts plus the presence of a secreting gland. This is borne out by the fact that none of the patients with an elevated serum amylase level following the morphine secretion test had elevations following the injection of morphine or secretin alone. Thus neither morphine, meperidine, nor codeine causes elevated serum amylase values unless the pancreas is secreting when the analgesic is given. Such conditions exist in a patient up to four hours after a meal or with acute primary or secondary inflammation of the pancreas. Thus the interpretation applied to a serum amylase value need not be altered because an analgesic has been used.

Geriatrics, Minneapolis

8:123-178 (March) 1953

Some Clinical Features of Chronic Gall Bladder Disease. A. Winkelstein.—p. 123.
Psychological Management of the Patient with Incurable Cancer. B. J. Murphey.—p. 130.
Visceral Atherosclerosis in Rabbits and in Man. O. J. Pollak.—p. 135.
Evolution of Calcareous Aortic Stenosis. E. P. Boas.—p. 142.
Urological Surgery After 80 Years of Age. E. H. Burford.—p. 151.
Estrogen-Androgen Mixtures in Climacterium: Report of 29 Cases. A. M. Shearman, M. Vogel and T. H. McGavack.—p. 155.

GP (J. Am. Acad. Gen. Practice), Kansas City, Mo.

7:1-200 (April) 1953

Clinical Problems in Prostatic Disease. J. L. Emmett and J. W. Faulkner.—p. 34.
Cortisone Therapy in Rheumatic Diseases. I. L. Sperling.—p. 45.
Primer on Homosexuality. O. S. English.—p. 55.
Anesthesia for Tonsillectomy Made Easy. J. R. Jarvis.—p. 61.
Rest—A Universal Therapeutic Agent. P. Williamson.—p. 67.
Management of Acute Myocardial Infarction. W. P. Harvey.—p. 71.

Hawaii Medical Journal, Honolulu

12:255-330 (March-April) 1953

*Removal of Normal Ovaries. C. C. McCorriston and C. M. Van Duyne.—p. 273.
Place of Radical Surgery for Cancer of Uterus. R. G. Hunter.—p. 275.
"Primary" Glaucoma and its Relation to General Disease. O. D. Pinkerton.—p. 281.
Management of Male Infertility Problems. G. A. Nicoll.—p. 284.

Removal of Normal Ovaries.—It has been pointed out that at some hospitals as many as 75% of ovaries removed were found to be structurally normal. McCorriston and Van Duyne investigated the histories of 323 patients subjected to ovarian surgery at an "open-staff" maternity and gynecological hospital at which 108 physicians had surgical privileges. A total of 485 ovaries were removed, 339 in conjunction with hysterectomy. A total of 241 of the ovaries were from women less than 41 years of age. For the purpose of this report, the authors define as "normal" any ovary 5 cm. or less in its largest dimension and possessing only structures representing common physiological events in the life of the ovary. Using this criterion, it was found that 62.2% of the ovaries extirpated were structurally normal. Considering separately the records of 127 patients in whom the ovary was the primary target of the surgeon, there were 100 instances in which but a single ovary was removed. Thirty-six per cent of these ovaries were normal. Of the ovaries removed from 19 patients subjected to bilateral oophorectomy, 18% were normal. The authors feel that a more conservative attitude toward the female gonad would be beneficial.

Iowa State Medical Society Journal, Des Moines

43:137-168 (April) 1953

Epidemiology of Poliomyelitis. F. H. Top.—p. 138.
Coxsackie Group of Viruses. A. P. McKee, J. M. Layton, W. S. Jeter and J. R. Porter.—p. 143.
*Management of Acute Severe Illness in Infancy and Childhood. C. D. May and R. D. Gauchat.—p. 146.
Functions of Clinical Biochemistry Laboratory. J. I. Routh and J. P. Hummel.—p. 148.
Therapeutic Contact Dermatitis. R. Nomland.—p. 150.
Teaching Value of Veterans Hospital. R. C. Hardin.—p. 153.

Management of Severe Illness in Childhood.—It is generally accepted that in the shock or failure of the circulation that follows hemorrhage or trauma ("surgical" shock), transfusion of blood may be expected to restore the circulation to normal. In medical shock, however, intravenous administration of blood or fluids cannot restore the circulation, excessive amounts of blood or fluid may be harmful. An unobstructed airway, particularly if the patient is unconscious, must be the physician's first concern; suctioning may be required throughout the period of shock. To appraise the physiological nature of the circulatory failure, a history must be taken to find out whether fluid or blood has been lost by starvation, vomiting, or diarrhea and, if possible, to detect the cause of the illness, whether it is infection or poisoning. Equal parts of blood or 5% glucose in water and isotonic sodium chloride solution may be injected intravenously, but care must be taken to avoid taxing the circulatory apparatus by an expansion of the blood volume beyond normal. The patient should be kept horizontal. Moving or manipulation for diagnostic procedures should be kept to the minimum. The power of contraction of a heart enfeebled by acute intoxicating disease cannot be strengthened by digitalis. The anoxia that follows circulatory failure cannot be relieved by oxygen therapy until circulation through the lungs is restored to normal. The high fever cannot be relieved by sponging of the cold skin; cold water enemas are more effective. The small amounts of fluid permissible should be used as a vehicle for intravenous injection of an appropriate antibiotic agent if infection seems the cause. Reoprts of the use of adrenal extracts and the synthetic cortical hormones cannot be interpreted as demonstrating a significant improvement in the course of patients suffering from medical shock. Stimulants such as caffeine have not been helpful. Perhaps the usefulness of all forms of drug therapy, other than that used to combat infection, is limited by a general disturbance of cellular metabolism.

Journal of Allergy, St. Louis

24:97-192 (March) 1953

So-Called Angioneurotic Edema. E. Bruun.—p. 97.
Effect of Antihistaminics on Plasmin Activity. R. R. Soicher, D. P Smith and B. Rose.—p. 106.
*Prolonged Treatment of Bronchial Asthma with Cortisone. F. C. Lowell, I. W. Schiller, S. E. Leard and W. Franklin.—p. 112.
Cutaneous Reaction to Bite of Mosquito Aëdes Aegypti (L.) and Its Alleviation by Topical Application of an Antihistaminic Cream (Pyribenzamine). F. J. O'Rourke and M. F. Murnaghan.—p. 120.
Studies in Reaginic and Histaminic Wheals: I. Effects of Reaginic and Histaminic Wheals Upon Subsequent Responsiveness of Passively Sensitized Cutaneous Sites. K. L. Bowman and M. Walzer.—p. 126.
Eczematous Sensitization in Various Age Groups. M. Schwartz.—p. 143.
Early Microscopic Changes of Antiplatelet Serum Shock in Dogs. C. M. Torres and W. O. Cruz.—p. 149.
Relation of pH of Allergenic Extracts to Storage and Skin Reactivity. L. H. Criep, A. I. Schepartz and M. Engel.—p. 158.
*Reactions Following Use of Aureomycin and Procaine Penicillin Troches: Controlled Study. A. H. Kutscher, J. Budowsky, S. L. Lane and N. W. Chilton.—p. 164.
Automatic Syringe Washer: Washing Apparatus for Cleaning Syringes. J. M. Quintero.—p. 172.
Pediatric Allergy: Review of Recent Literature. V. J. Fontana.—p. 174.

Bronchial Asthma Treated with Cortisone.—Cortisone was given for a year or more to 10 male and 9 female patients between the ages of 8 and 66 years with bronchial asthma. The drug was administered in two doses to patients receiving 50 mg. daily, in three doses to those receiving 75 mg. daily, and in four doses to those receiving 100 mg. or more daily. Repeated measurements of the vital capacity and the maximum expiratory rate were made in most patients. Both the vital capacity and the expiratory rate increased on administration of cortisone, and this increase appeared to be maximal after 10 to 14 days of treatment in most patients. Although 17 of the 19 patients have maintained a satisfactory state of health, no evidence has been obtained to date that the underlying pulmonary disease of which asthma is the manifestation has been materially influenced by treatment. In two patients who improved initially increasing asthma has developed during treatment and they may probably be regarded as failures. The chief side-effects observed in this group of patients were gain in weight in 10 patients and hypertension in 3 patients, although the latter may be coincidental. Recurrent respiratory infections may be difficult to recognize, because patients receiving cortisone often fail to develop the common subjective sensations that accompany infections; respiratory infections are often associated with relapse or exacerbation of the asthma.

Reactions to Aureomycin and Procaine Penicillin Troches.—In a controlled study of 300 patients with minor oral disorders 150 were given aureomycin hydrochloride troches or placebo troches, five troches per day for four days; the remaining 150 were given procaine penicillin G troches (5,000 units per troche) or placebo troches, five per day for four days. The reactions of these patients were evaluated and compared with those previously observed in 143 patients to whom oxytetracycline (Terramycin) troches had been given. Of 100 patients receiving aureomycin troches, 51 (51%) evidenced untoward reactions, compared with 7 (14%) of the 50 patients who received placebo troches, a statistically significant difference. Of the 100 patients receiving procaine penicillin G troches, 38 (38%) evidenced untoward reactions, compared with 7 (14%) of the 50 patients who received placebo troches, also a statistically significant difference. The reactions to aureomycin troches were severe enough to warrant cessation of therapy in 14% of the patients, moderate in 10%, and slight in 27%. Reactions to procaine penicillin G troches were severe enough to require discontinuation of therapy in 11% of the patients, moderate in 11%, and slight in 16%. With oxytetracycline troches reactions that necessitated discontinuation of therapy occurred in 14.7% of patients, moderate reactions in 16.1% and slight reactions in 22.4%. The reactions to all three antibiotics were limited primarily to the mouth and pharynx. Severe glossitis or stomatitis occurred in six patients and pharyngitis in two patients in the aureomycin treated group (8%); severe glossitis or stomatitis was noted in six patients in the procaine penicillin G treated group (6%). In the oxytetracycline series of 143 patients, severe glossitis or stomatitis occurred in 8 patients and pharyngitis in 5 (9%). Thus the types of reactions observed with aureomycin and procaine penicillin G troches were similar to those previously observed with oxytetracycline troches, but the incidence of some of these reactions differed according to the medication used. As a result of their experience, the authors suggest that antibiotic troche medication may be utilized whenever its application is specifically indicated; it is not indicated for promiscuous use or when the administration of medication less likely to produce reactions is possible.

Journal of Clinical Investigation, New York

32:273-390 (April) 1953. **Partial Index**

Comparison of Metabolism of Fructose and Glucose in Hepatic Disease and Diabetes Mellitus. L. H. Smith Jr., R. H. Ettinger and D. Seligson.—p. 273.

Effect of an Infusion of Hyperoncotic Albumin on Excretion of Water and Solutes. R. G. Petersdorf and L. G. Welt.—p. 283.

Determination of Blood Viscosity in Man by Method Based on Poiseuille's Law. B. Pirofsky.—p. 292.

Volume of Extracellular Fluid in Experimental and Human Hypertension. A. Grollman and A. P. Shapiro.—p. 312.

Quantitative Antibody Studies in Man: III. Antibody Response in Leukemia and Other Malignant Lymphomata. D. L. Larson and L. J. Tomlinson.—p. 317.

Studies on Copper Metabolism. M. E. Lahey, C. J. Gubler, G. E. Cartwright and M. M. Wintrobe.—p. 322.

Effects of Dextran in Normovolemic and Oligemic Subjects. J. F. Hammersten, B. I. Heller and R. V. Ebert.—p. 340.

Acute Glomerulonephritis: The Significance of Variations in Incidence of the Disease. C. H. Rammelkamp Jr. and R. S. Weaver.—p. 345.

Association of Type Specific Hemolytic Streptococci with Acute Glomerulonephritis: At the Presbyterian and Babies Hospitals, New York, N. Y., in the Years 1936-1942. A. R. Wertheim, J. D. Lyttle, E. N. Loeb and others.—p. 359.

Application of Hemodialysis to Treatment of Barbiturate Poisoning. L. H. Kyle, H. Jeghers, W. P. Walsh and others.—p. 364.

Effect of ACTH and Cortisone on Cerebral Blood Flow and Metabolism. W. Sensenbach, L. Madison and L. Ochs.—p. 372.

Identification of Thromboplastin Inhibitor in Serum and in Plasma. G. F. Lanchantin and A. G. Ware.—p. 381.

J. Neuropathology & Exper. Neurology, Baltimore

12:107-204 (April) 1953

Massive Cerebral Hemorrhage: Spontaneous and Experimentally Induced. J. H. Globus and J. A. Epstein.—p. 107.

Anatomy and Functional Significance of Meningeal Arterial Anastomoses of Human Brain. H. M. Vander Eecken and R. D. Adams.—p. 132.

Maduromycosis of Central Nervous System. S. M. Aronson, R. Benham and A. Wolf.—p. 158.

Human Rabies: Case Report with Necropsy Studies Wherein Brain and Salivary Gland Yielded Virus: Notes on Viral Tissue Distribution. C. A. Berntsen Jr. and L. D. Stevenson.—p. 169.

Primary Sarcoma of Leptomeninges: Report of Three Cases. Ching Tung Liu and G. Selvach.—p. 186.

Origin of Fibrous Tissue in Meningiomata. L. Wolman.—p. 194.

Myelin Sheath Stain for Paraffin or Celloidin Sections. E. B. Crimbring.—p. 201.

Journal of Neurosurgery, Springfield, Ill.

10:91-204 (March) 1953

•Complications of Carotid Artery Ligation in the Neck. C. E. Brackett Jr.—p. 91.

Sympathetic Blockade, An Acute Cervical Cord Syndrome. P. R. Rosenbluth and A. M. Meirowsky.—p. 107.

Further Observations on Medullary Spinothalamic Tractotomy. A. S. Crawford and R. S. Knighton.—p. 113.

Syndrome of Traumatic Intracerebellar Hematoma with Contrecoup Supratentorial Complications. R. C. Schneider, L. J. Lemmen and B. K. Bagchi.—p. 122.

Paralysis of the Ulnar Nerve and Management of Its Deformity with Suggestion for Temporary Partial Blockade During Recovery. J. A. Valone.—p. 138.

Myelographic Appearance of Adhesive Spinal Arachnoiditis. W. B. Seaman, S. N. Marder and H. E. Rosenbaum.—p. 145.

•Treatment of Ruptured Lumbar Intervertebral Discs by Vertebral Body Fusion. I. Indications, Operative Technique, After Care. R. B. Cloward.—p. 154.

Sensitization of Spinal Cord of Cat to Pain-Inducing Stimuli. M. A. Kennard.—p. 169.

Complications of Carotid Artery Ligation.—Of 65 patients in whom carotid artery ligation in the neck was performed for intracranial vascular abnormalities, 21 had cerebral complications (a morbidity rate of 32%) and 6 died (a mortality rate of 9%). Complications ranged from appearance of pathological reflexes to hemiplegia and other severe disturbances. The age per se of the patients did not play a part in the production of complications. Observations on the author's patients and reports from the literature suggest that there is a definite hazard in ligation of the carotid artery in the neck in the presence of active subarachnoid bleeding and that a supraclinoid vascular lesion in the vicinity of the circle of Willis imposes an equal or greater hazard. The author therefore believes that ligation, when indicated, should be deferred for two weeks after the last bleeding episode. In 16 of the 21 patients with complications arteriography was carried out; it revealed deficient collateral circulation in 7. The necessity for adequate collateral circulation in patients who are to receive ligation has been emphasized. In 9 of the 21 patients with complications there was a significant rise in arterial pressure; it is suggested that hypertension at any time after ligation may be a warning of impending danger. Thirteen of the 21 patients with complications complained of headache; hemiparesis occurred in 17, mental confusion in 7, hemisensory changes in 6, aphasia in 6 of 17 with left-sided lesions, and blindness in 2. Only three patients remained unconscious, and two of these were in coma due to bleeding when the ligation was performed. The following tentative hypothesis of the causation of complications after carotid artery ligation in the neck is presented: Insufficient blood flow secondary to ligation and deficient collateral circulation cause relative anoxemia, which produces anoxia of the terminal vessel, with dilatation, transudation of fluid, unilateral cerebral edema, and increased intracranial pressure. Compensatory arterial hypertension ensues, but its effect is blocked by the ligation. Tissue anoxia follows until the compensation point is passed, when clinical symptoms rapidly appear. Prompt removal of the ligature may re-establish adequate blood flow and oxygenation. On the basis of this concept the following suggestions for the prevention and therapy of these complications are presented: Selection of patients should be based on adequate preoperative knowledge of the dangerous cases, with emphasis on the supraclinoid and communicating artery location and adequacy of the collateral circulation. Selection of the optimum type of ligation should be aided by complete arteriography and pressure recordings. Adequate observation and testing during the first 24 hours after the ligation is imperative. Since the clip must be removed within 15 minutes and 10 minutes are usually required for such removal, the patient must be under constant observation by a nurse and tested for strength and responsiveness every five minutes for at least 12 hours. In 11 of the author's 21 patients clip removal was done and was considered lifesaving. The speed and degree of the recovery was directly related to the promptness with which the clip was removed. Although the series is too small to permit definite conclusions until more data are available, the outline of treatment may provide a basis for more active therapy when such complications arise.

Treatment of Ruptured Lumbar Disks by Spinal Fusion.—According to Cloward, in order to relieve a patient with ruptured lumbar intervertebral disk of all symptoms, both causes of disability must be considered and treated. The two causes are low back pain, primarily caused by collapse of the intervertebral disk and the resultant loose, unstable vertebral joint, and pain in the lower extremities, resulting from compression of the root at the intervertebral foramen. Consequently all abnormal mechanical factors that may compress the nerve root must first be removed, and second, the broken, movable, painful vertebral joint must be immobilized. Fusion of the vertebral bodies by a strong intervertebral graft wedged into the interspace to replace the ruptured disk seemed to be the logical procedure. The operative method employed by the author consists of subtotal removal of the ruptured intervertebral disk, including the cartilaginous plates, through a partial bilateral laminectomy. The cortical surfaces of the vertebral bodies are removed with a chisel, and three or more large full-thickness bone grafts obtained from the iliac crest are driven forcibly into the interspace. This procedure, which is described in detail, was performed on 321 patients who were followed for from six months to eight years postoperatively. Before 1946, the bone grafts used for the fusion were taken from the ilium of the patient, while since 1947 bone from a bone bank has been used successfully in 131 patients. The patients operated on by this procedure during the first five years were fitted with a low-lumbar back brace, which was worn for three months. In the last two years, with more extensive grafting of the interspace, it has become unnecessary to require the patient to wear a back brace. Since the back brace has been discontinued, patients seem to recover the normal flexibility of their spines much sooner. If the patient's occupation requires him to do heavy manual labor, including bending and lifting, he is permitted to return to this work in approximately three months, depending on the appearance of the fusion as determined by x-ray. Other patients are often able to return to their jobs within two weeks after the operation. Complete long-term cures were obtained in over 85% of the author's patients. Failure of fusion because of unexplained absorption of the intervertebral grafts occurred in only six patients. In two of these six patients, the vertebral bodies eventually fused after prolonged convalescence, while a second fusion was performed in the remaining four. Transient numbness of the foot and ankle and weakness of anterior tibial muscle were occasionally observed. It was necessary to remove the bone grafts in only 2 of the 14 patients in whom infection occurred. In all the others the wounds healed without loss of bone and the fusion was more solid than in those that were not infected. The rapidity with which patients recover from the operation and the high percentage of complete long-term cures seem to justify the conclusion that spinal fusion is the treatment of choice for ruptured lumbar intervertebral disk.

Journal of Nutrition, Philadelphia

49:191-372 (Feb.) 1953. Partial Index

Enzymatic Liberation of Amino Acids from Different Proteins. A. E. Denton and C. A. Elvehjem.—p. 221.
Influence of Various Carbohydrates on Utilization of Low Protein Rations by White Rat; Comparison of Sucrose and Cornstarch in 9% Casein Rations. A. E. Harper and M. C. Katayama.—p. 261.
Utilization of Amino Acids from Foods by Rat; Methods of Testing for Lysine. B. S. Schweigert and B. T. Guthneck.—p. 277.
Relative Cariogenicity of Sucrose When Ingested in Solid Form and in Solution by the Albino Rat. J. Haldi, W. Wynn, J. H. Shaw and R. F. Sognnaes.—p. 295.
Possible Mechanism Involved in Growth-Promoting Responses Obtained from Antibiotics. J. F. Elam, R. L. Jacobs, W. L. Tidwell and others. —p. 307.
Studies to Determine Nature of Damage to Nutritive Value of Some Vegetable Oils from Heat Treatment: III. Segregation of Toxic and Non-Toxic Material from Esters of Heat-Polymerized Linseed Oil by Distillation and by Urea Adduct Formation. E. W. Crampton, R. H. Common, F. A. Farmer and others.—p. 333.
Vitamin A Requirement of Mouse. P. T. McCarthy and L. R. Cerecedo. —p. 357.

Journal of Pediatrics, St. Louis

42:401-524 (April) 1953

Serum Calcium and Inorganic Phosphate in Newborn Infant, and Their Relation to Different Feedings. G. G. Graham, L. A. Barness and P. György.—p. 401.
*Use of BAL in Treatment of Acute Lead Encephalopathy. G. E. Deane, F. J. Heldrich Jr. and J. E. Bradley.—p. 409.
*Isolated Myocarditis in Infants. G. J. Conlin Jr. and F. A. Mantz Jr. —p. 414.
Changes in Blood Coagulation Factors During the First Week of Life. C. A. Owen Jr. and M. M. Hurn.—p. 424.
Teaching Infants to Walk: Physiological Considerations. M. H. Herzmark. —p. 429.
Duodenal Atresia. W. C. Beck and G. Chohany.—p. 432.
Fractures of Mandible and Maxilla in Children. N. G. Georgiade, F. W. Masters, J. T. Metzger and K. L. Pickrell.—p. 440.
Effect of Early Immunization During Infancy on Kidney, Liver, and Blood Tests. J. Schwartzman, E. Friedman Jr. and G. Wein.—p. 450.
Favism: Report of a Case and Brief Review of the Literature. V. dePaul Larkin.—p. 453.
Functional Disorders of the Larynx in Early Infancy. A. B. Schwartz. —p. 457.
Case of Congenital Sympathogonioma (Neuroblastoma) of the Right Adrenal Simulating Erythroblastosis Fetalis. L. W. Falkinburg and M. N. Kay.—p. 462.
Pulmonary Leiomyosarcoma in a Child. W. P. Killingsworth. G. S. McReynolds and A. W. Harrison—p. 466.
Congenital Absence of Spleen. N. N. Adler and E. J. Van Slyke.—p. 471.
Chondrodystrophia Calcificans Congenita. B. H. Berrey and C. H. Kimball.—p. 474.

Dimercaprol in Acute Lead Encephalopathy.—Deane and associates summarize the results of treatment of 54 children with acute lead encephalopathy. The ages ranged from 15 months to 7 years. Inquiry into the source of the lead revealed that 32 had eaten lead paint and 12 had eaten plaster. Signs and symptoms included convulsions, vomiting, and neurological abnormalities. The long bones were examined in 46 of the patients, and 41 had evidence of heavy metal deposition at the metaphyseal ends. The children revealed an average blood lead level of 0.25 mg. per 100 cc., with a range of 0.08 to 0.73 mg. per 100 cc. of blood (over 0.06 mg. is considered abnormal). A positive urine test for coproporphyrin of 2+ or more is also of diagnostic value. Thirty-eight patients were treated before 1948, when treatment consisted of the use of calcium in the form of lactate, gluconate, or chloride administered both orally and parenterally and supplemented by high vitamin D intake, increased phosphorus intake, and sodium citrate. After 1948 patients were treated with dimercaprol, in the form of a 10% solution of dimercaprol in benzyl benzoate and oil. The therapeutic regimen was to give 3 mg. of dimercaprol per kilogram every four hours for a total of 10 days. Supportive measures included in both series the use of barbiturates, intramuscular magnesium sulfate, and, in some instances, drop ether to control the convulsions. The fluid balance was maintained, and chemotherapeutic agents were used whenever infection was present. Of the 38 treated without dimercaprol, 10 died, whereas only one of the 16 treated with dimercaprol died. Because of this striking difference in the mortality of the two groups, the authors advise that treatment with dimercaprol be continued in acute lead encephalopathy.

Isolated Myocarditis in Infants.—Isolated myocarditis, which was first described by Fiedler in 1899, is a nonspecific, idiopathic disease characterized by progressive or sudden heart failure, frequently associated with various aberrations of the cardiac-conducting mechanism. The only constant structural changes are inflammation of variable type, confined to the myocardium, and cardiac hypertrophy. Boikan differentiated three types. The first is an acute diffuse lesion from which, he felt, recovery was possible. The second is a more chronic form that causes death in a period of months. The third type is manifested by recent and remote cardiac changes that ultimately result in death from progressive heart failure. While the disease usually occurs in young adults, the authors found reports of 26 young children (up to 22 months) in whom the disorder was either proved or suspected. The authors describe two infants in whom they observed the disease. The first of these infants had an acute, diffuse, myocardial lesion that seems to correspond to the first type described by Boikan. It is difficult, however, to conceive of recovery in a heart so intensely inflamed. The disease in the second infant, in whom a clinical diagnosis was established on the basis of bradycardia, low-grade fever, syncope, and changing electrocardiograms for which no other apparent cause could be discovered, corresponded to Boikan's second group. Although the fever was altered by penicillin, no therapeutic responses were elicited by sulfadiazine or atropine in high dosage, and these agents failed to prevent syncope and death. Isolated myocarditis should be considered in the differential diagnosis of cryptogenic cardiac arrhythmias and cardiac enlargement occurring in infants.

Journal of the Student A.M.A., Chicago

2:1-82 (April) 1953. **Partial Index**

Synthetic Analgesics. D. C. Schechter.—p. 19.
Diabetes Mellitus and Insulin. A. R. Lewis.—p. 24.
Referring a Patient to a Psychiatrist. W. M. Shanahan.—p. 28.
Tell Cancer Patients the Truth. T. E. Douglas Jr.—p. 43.
School Health and the Doctor. D. A. Dukelow.—p. 46.
Problems of Medical Educator. J. D. Van Nuys.—p. 49.

Maine Medical Association Journal, Portland

44:57-82 (March) 1953

Status of Tuberculosis Control in Maine—Critical Study. A. Ashley.—p. 57.
Vaginal Smear: Guide to Diagnosis, Prognosis and Treatment. W. M. Shubert.—p. 64.
Management of Third Stage of Labor. D. Coulton.—p. 67.
Radiological Aspects of Hemorrhage from Peptic Ulcer. J. Spencer.—p. 70.
Case History of Near Suicide. N. Fish.—p. 72.
Medicine and the Law. H. E. Locke.—p. 74.

Marquette Medical Review, Milwaukee

18:107-162 (March) 1953

Focal Glomerulonephritis. J. F. Kuzma and T. Z. Polley.—p. 110.
Clinical Significance of Auricular Fibrillation. E. J. Kirby.—p. 117.
*Postmeningitis Complications. M. J. Fox.—p. 122.
Primary Pulmonary Aspergillosis. M. A. Hall.—p. 128.
Surgical Treatment of Intestinal Obstruction. B. T. Bonell.—p. 135.
Use of *Diamidines in Treatment of Blastomycosis.* T. M. Thorgersen.—p. 139.
Cancer: Significant Treatment: Cancer of Mouth. J. M. Gules and P. J. Reilly.—p. 145.

Postmeningitis Complications.—Fox observed that not infrequently patients who had recovered from meningitis would revisit the hospital 5 to 10 years after their illness with symptoms such as headaches, loss of hearing or hearing defects, muscle pain, fainting spells, muscle twitching, or, rarely, convulsions. Frequently the family physician would call the hospital regarding the patient's record. Understanding of postmeningitic symptoms has become more important since the mortality rate has been greatly decreased by the use of sulfonamides and antibiotics. A questionnaire regarding complications and sequelae was sent to 323 patients who had been treated for acute meningococcic meningitis at a Milwaukee hospital between 1936 and 1945. Nearly half of those who responded had some symptoms. Headache was the commonest residual. It was localized most frequently to the occipital area. About half (88) of those who replied complained of what the author designates as cord symptoms, that is, joint or muscle pain and muscle twitchings. Fainting was reported by seven patients and convulsions by one. Another questionnaire was sent to the 22 patients who complained of impairment of hearing. Since two of the 16 who responded stated that their hearing had been defective before the attack of meningitis, only 14 are considered. One patient reported eventual complete recovery and six others improvement in hearing; the other seven experienced no improvement. Changes in weather, altered working conditions, and drinking large amounts of water aggravated the residual symptoms in some of the patients. A fibroblastic proliferation inhibiting free circulation of cerebrospinal fluid and resulting also in a circulatory embarrassment to the brain and spinal cord may be the pathological change responsible for the postmeningitic symptoms. The pathological change causing the auditory impairment is in the temporal bone area. There is extension of the exudate by way of perineural spaces of the eighth nerve and perivascular spaces of modiolar vessels. The exudate leads to atrophy and degeneration of the neuroepithelium of the cochlea and vestibule.

Maryland State Medical Journal, Baltimore

2:107-164 (March) 1953

SYMPOSIUM ON EUTHANASIA

Legal Aspects Relating to Euthanasia. C. E. Orth Jr.—p. 120.
Sanctity of Life. G. Boas.—p. 128.
Medical Aspects Relating to Euthanasia. L. Krause.—p. 131.
Vaccination and Immunization History of Children Entering First Grade in 1951 and 1952. C. R. Hayman.—p. 141.
Traumatic Unconsciousness: Guide in Head Injury. R. K. Thompson.—p. 143.

Metabolism, New York

2:103-200 (March) 1953

Antimetabolites: Review. E. Shaw.—p. 103.
Serum Lipids in Diabetic Acidosis. L. V. D. Harris, M. J. Albrink, W. F. Van Eck and others.—p. 120.
Lack of Effect of Administered Estrogen on Serum Lipids and Lipoproteins of Male and Female Patients. S. J. Glas, H. Engelberg, R. Marcus and others.—p. 133.
Effect of Estrogens on Partition of Serum Lipids in Female Patients. M. L. Eilert.—p. 137.
Influence of Previous Diet on Carbohydrate Utilization by Diaphragms of Adrenalectomized Rats. C. Cohn and M. Kolinsky.—p. 146.
Factors Influencing Response of Adrenalectomized Rats to Stress. M. E. Dumm and E. P. Ralli.—p. 153.
Effect of Lipotropic-Deficient Diets and Steroid Hormones on Pregnant Rat. R. A. Shipley, E. B. Chudzik, C. Curtiss and J. W. Price.—p. 165.
Effects of Fat Content of Ration on Antithyrotoxic Properties of B Vitamins and Liver Residue in Hyperthyroid Rat. B. H. Ershoff.—p. 175.

Military Surgeon, Washington, D. C.

112:233-314 (April) 1953. **Partial Index**

Utilization of Federal Professional Health Personnel. H. A. Rusk.—p. 233.
Location of Hospitals in Respect to Target Areas. J. W. Cronin.—p. 236.
Armed Forces Medical Library. F. B. Rogers.—p. 246.
Surgery of Acute Vascular Injuries: Report of 77 Cases. E. J. Jahnke Jr.—p. 249.
Cooperative Planning of Dietary Services. E. Jones.—p. 252.
Air Evacuation from Korea—A Typical Flight. J. Albert.—p. 256.
Mission of Military Surgeon in the Modern World: European Views on Patriotism, Humanitarianism, and Ethics in Global Warfare. C. F. Mayer.—p. 261.

Nebraska State Medical Journal, Lincoln

38:77-116 (March) 1953

Surgical Aspects of Hypersplenism. R. S. Sparkman.—p. 79.
Internal Hernia Secondary to Acute Appendicitis. E. K. Connors and R. L. Lawton.—p. 82.
Pathogenesis and Treatment of Pernicious Anemia. P. T. Pratt and M. O. Johnson.—p. 84.
Pyloric Hypertrophy in the Adult. W. P. Kleitsch.—p. 87.

38:117-168 (April) 1953

*Trichlorethylene in Obstetrics. H. S. Morgan, F. Cole and R. Gorthey.—p. 119.
Evaluation of C.C.K.-179 (Hydergine) in Therapy of Hypertension. W. J. Reedy, R. J. Caffery and J. Lavelle.—p. 122.
Methods for Determining Bacterial Susceptibility to Antimicrobial Agents and Their Relative Value to the Clinician. J. M. Severens.—p. 126.
Chondrosarcoma of Thorax, Rectal Polyps and Cancer of Rectum. W. P. Kleitsch.—p. 129.

Trichlorethylene in Obstetrics.—Morgan and associates used trichlorethylene as an anesthetic agent in the delivery of 140 multiparous and 14 primiparous women. No maternal deaths occurred, nor did any of the babies show signs of respiratory depression or difficulty. More can be accomplished with trichlorethylene than is usually thought possible. General anesthesia can be obtained with it, and it provides adequate anesthesia for forceps applications, episiotomies, and repairs. Episiotomy and repair were done in 95 cases. Forceps were used in 60 cases, some liberalization in the indications being entertained because of the clinical trial of trichlorethylene. Postpartum nausea and vomiting were rare. Relaxation of perineal structures was not good, however, and the authors do not recommend trichlorethylene for women in whom delivery is difficult, nor in any patient whose delivery will be facilitated by complete relaxation of the muscles of the pelvic floor, i. e., breech delivery. Retrograde amnesia followed in almost all patients, and for this reason, trichlorethylene has found ready patient acceptance. The possibility of using trichlorethylene in twin deliveries is discussed. Few side-effects were encountered. It was the impression of several observers that labor was shortened because of the psychological support offered by the hand mask. Supplementary anesthesia was required in only three cases. As a rule, trichlorethylene anesthesia should be started only in cases for which it obviously will suffice, but if necessary, a change can be made to use of open drop ether.

New England Journal of Medicine, Boston

248:481-526 (March 19) 1953

"Continuous" vs. "Discontinuous" Therapy with Penicillin: Effect of Interval Between Injections on Therapeutic Efficacy. H. Eagle, R. Fleischman and M. Levy.—p. 481.
Group Practice with Branch Centers in Rural County. C. B. Esselstyn. —p. 488.
Hazards in Treatment of Cardiac Decompensation. M. D. Altschule. —p. 493.
Surgical Treatment of Diverticulitis of Colon. M. K. Bartlett and W. V. McDermott.—p. 497.
Endoscopy. E. B. Benedict.—p. 500.
Mongolism—Implications of Dental Anomalies. T. H. Ingalls and R. L. Butler.—p. 511.

248:527-570 (March 26) 1953

Epidemic Salmonalle Newport Infection in a Metropolitan Area. A. D. Rubenstein and R. A. MacCready.—p. 527.
Glomerulonephritis as Complication of the Schönlein—Henoch Syndrome. L. M. Levitt and B. Burbank.—p. 530.
Multiple Antibody Formation in Autoimmune Hemolytic Anemia: Report of a Case. M. C. Rosenthal, Z. D. Komninos and W. Dameshek. —p. 537.
Contribution of S. Ramon y Cajal to the Knowledge of the Anatomy of Cerebral Cortex. J. L. Conel.—p. 541.
Health in Colleges. D. L. Farnsworth.—p. 543.
*Congenital Afibrinogenemia: Report of Case. H. A. Lawson.—p. 552.

Congenital Afibrinogenemia.—Congenital afibrinogenemia is a rare disease that was first described by Rabe and Salomon in 1920. After briefly citing several other reports, Lawson presents the case of a 19-year-old woman, who was first seen at the age of 16. She had had several episodes of uncontrollable bleeding from lacerations resulting from childhood accidents. The hemorrhage could not be arrested until she was given blood transfusions, which on each occasion caused prompt cessation of bleeding. On two or more occasions troublesome bleeding had followed extraction of teeth. She had intervals of months or years without difficulty of any sort, the hemorrhage occurring only as a result of injuries. She had never had epistaxis, bleeding gums, hemarthrosis, or hematuria, but she almost always had several black-and-blue spots on her arms or legs as the result of slight trauma such as bumping against furniture. There was no consanguinity of the parents (a situation that has been reported in other cases of this disease). A brother had died three days after birth as a result of uncontrollable hemorrhage from the umbilical cord. The patient's mother had a history of easy bruising throughout her life but had never had any serious hemorrhage. Examination of the mother's blood revealed a mild deficiency in fibrinogen. Laboratory examinations on the patient were negative except for the complete incoagulability of the blood due to absence of fibrinogen. This case was of unusal interest because menstruation was entirely normal; it clearly demonstrated that a normal menstrual flow is possible despite the inability to form a fibrin clot. As regards the advisability of marriage and child-bearing, it is necessary to consider the safety and welfare of the patient and the possibility of inheritance of this serious disease by any children she might have. In this case there is a strong familial tendency, as shown by the partial deficiency of fibrinogen in the mother and the probability of complete afibrinogenemia in a brother.

Review of Gastroenterology, New York

20:209-280 (April) 1953

SYMPOSIUM ON DISEASES OF LIVER

Liver Biopsy. J. R. Neefe.—p. 217.
Present Status of Liver Function Tests. S. S. Lichtman.—p. 221.
Histologic Criteria for Differential Diagnosis of Liver Diseases in Needle Biopsies. H. F. Smetana, T. C. Keller and I. N. Dubin. —p. 227.
Postoperative Abdominal Distention. E. F. Sciorsci.—p. 245.

South Carolina Medical Assn. Journal, Florence

49:61-84 (March) 1953

Pregnancy with Sickle Cell Anemia. H. H. Fouche and J. F. Williamson. —p. 61.
Ethyl Biscoumacetate (Tromexan) in Coronary Artery Disease: Preliminary Report. R. S. Pollitzer.—p. 66.
Diagnosis of Pernicious Anemia. E. A. Dreskin.—p. 68.
Epidermoid Carcinoma of Vulva. H. E. Smith, L. L. Hester Jr. and J. M. Wilson.—p. 71.

49:85-118 (April) 1953

Diaphragmatic Hernia and Eventration in Infancy. W. C. Cantey and G. W. Scurry.—p. 85.
Safeguards and Pitfalls in Treating Injuries of Upper Extremity. G. R. Dawson Jr.—p. 91.
Surgical Treatment of Mitral Stenosis or Mitral Valve Commissurotomy: History of Its Development and Its Adaptability to Sequelae of Rheumatic Heart Disease. W. M. Lemmon.—p. 93.

University Michigan Medical Bull., Ann Arbor, Mich.

19:23-54 (Feb.) 1953

*Overwhelming Bacteremic Shock Produced by Gram-Negative Bacilli: Report of Four Cases with One Recovery. A. I. Braude, J. Siemienski, D. Williams and J. P. Sanford.—p. 23.
Clinical Experience with New Indandione Derivative: Preliminary Report. I. F. Duff, E. W. Dennis, P. E. Hodgson and W. W. Coon.—p. 43.

Bacteremic Shock Produced by Gram-Negative Bacilli.—Braude and associates observed four cases of overwhelming bacteremic shock. Two resulted from naturally occurring infections, another from transfusion of contaminated blood, and in one the origin of the bacteremia was not definitely determined. These cases illustrate the clinical nature of a syndrome that is not usually defined as a separate entity. Three sets of symptoms were observed: (1) chills, fever, and sweats; (2) severe abdominal pain associated with voluminous stools, which were sometimes liquid or bloody, and severe muscular pain accompanied by such tenderness to touch that the patients often objected to being handled; and (3) severe hypotension (average blood pressure about 65/35) accompanied by rapid labored respirations, mental confusion, apprehension, restlessness, cyanosis, and anuria. Symptoms observed in addition to these three groups included a bleeding tendency and jaundice. A paracolon organism was isolated from the blood of each of two patients. The blood of one of these also contained innumerable Aerobacter aerogenes. Two other patients also had two species of bacteria. In one Proteus and Enterococcus organisms were repeatedly isolated from the blood. In another patient both Escherichia freundii and a coliform organism of intermediate type were present in large numbers in the contaminated blood transfused into the patient, but only the paracolon was recovered from the patient's blood. The authors describe studies with antibiotics. One of the four patients in shock was successfully treated with antibiotics, arterenol, and cortisone. There should be no hesitation in using all the antibiotics that may be active against gram-negative bacilli. The patient in whom therapy was successful was treated with aerosporin (polymyxin B), aureomycin, chloramphenicol, and penicillin. Studies bore out the logic of using several antibiotics; aerosporin proved to be highly bactericidal against the Esch. freundii and the other coliform isolated from the patient. There was no doubt about the effectiveness of arterenol, but the value of cortisone was not clear. In all four patients massive numbers of bacilli were detected in the blood; in one they were so numerous that they could be demonstrated microscopically in a smear made from a drop of capillary blood. For comparison the authors also recorded observations on two patients with bacteremia due to gram-negative bacilli who did not experience hypotension. The blood of the two patients who did not experience shock was not heavily infected.

Wisconsin Medical Journal, Madison

52:219-264 (April) 1953

Lumbar Hernia: Case Report from Mercy Hospital, Janesville. V. W. Koch, R. C. Gallagher Jr., W. A. Munn and C. Tomlinson.—p. 219.
Addison's Disease with Protracted Unusual Mental Changes. V. V. Quandt and S. Rosenthal.—p. 225.
Degenerative Disease of Hip Joint. C. M. Ihle.—p. 229.
Dietary Management of the Pregnant Patient. A. C. Barnes.—p. 232
Cardiac Arrest and Resuscitation: Report of Two Cases. E. E. Eckstam, D. E. Mings, O. S. Blum and others.—p. 235.

FOREIGN

Acta Chirurgica Scandinavica, Stockholm

104:341-424 (No. 5) 1953. Partial Index

Total Gastrectomy or Not in Cancer? L. Troell.—p. 341.
Case of Fixed Total Hepatoptosis Treated Surgically. J. Adams-Ray.—p. 348.
Valvulotomy for Pure Pulmonary Stenosis. F. Therkelsen.—p. 353.
•Valvulotomy for Pulmonary Stenosis Performed Through the Main Stem of Pulmonary Artery Utilizing a Special Ring Clamp. T. Søndergaard.—p. 362.

Improved Technique of Valvulotomy for Pulmonary Stenosis.—Pulmonary valvulotomy is indicated in patients with symptoms due to pure pulmonary stenosis with or without an atrial septal defect, and there is much in favor of this procedure in cases of tetralogy of Fallot with valvular pulmonary stenosis. While satisfactory results may be obtained with a transventricular approach, the arterial route offers the following advantages: Damage to vital tissue is avoided. The surgeon is working behind the stenosis through a vessel that is usually dilated and spacious, with low pressure, and without disturbing the circulation or placing an additional load on the heart, which already has been under great strain. A ring clamp is described that permits a safe access to the interior of the pulmonary artery without any significant loss of blood and facilitates performance of valvulotomy through the main trunk of the artery. The procedure on the valve thus can be done deliberately and slowly, and the difficulty in locating the stenosed orifice is eliminated. Four illustrative cases in which this technique was used for valvular stenosis of the pulmonary artery in children between the ages of 6 and 13 years are reported. Thoracotomy was performed, with resection of the left fifth rib, and the ring clamp was placed on the pulmonary artery for 20 minutes. The blood pressure dropped 10 to 20 mm. Hg during the actual manipulations on the valve but returned to normal within seconds as soon as the instruments were withdrawn. The perfect control over the blood loss offered by the ring clamp made it possible to pass the cutting and dilating instruments through the orifice, which had been easily located with a probe, without damaging the normal valve. A valvulotome with retractable blades and Brock's expansible dilator were used. The closure of the incision in the artery with a continuous everting suture proved less difficult than the suture of the ventricular wall. As a result of his experience, the author states that in selected cases the arterial route has a decided advantage over the transventricular approach in patients with pulmonary valvular stenosis.

Acta Endocrinologica, Copenhagen

12:193-288 (No. 3) 1953. Partial Index

Antidiuretic Effect of Coitus in Human Subjects. O. Friberg.—p. 193.
ACTH-Like Effect of Acetylsalicylic Acid: Investigation of Combined Treatment with Acetylsalicylic Acid and Pantothenic Acid. J. Böe and K. F. Stöa.—p. 201.
•Adrenocortical Response to Corticotropin, Cortisone, and Ascorbic Acid in Children: Comparison with Results Obtained in Adults. M. Sprechler and J. Vesterdal.—p. 207.
Blood Levels of 17-Hydroxycorticosteroids in Normal Men and Men Whose Adrenals Have Been Removed Following Administration of Cortisone Acetate. C. A. Gemzell and C. Franksson.—p. 218.
Effect of Diethylstilbenediol on Healing of Wounds in Human Vagina. S. Sjöstedt.—p. 260.
Relation Between Hypophysis and Thyroid Gland: Experiments with Radioactive Iodine. A. Jentzer.—p. 264.

Adrenocortical Response to Corticotropin, Cortisone, and Ascorbic Acid in Children.—Investigations on the urinary excretion of steroids in normal children indicate a very low excretion of 17-ketosteroids until the beginning of puberty. The rapid yearly increase in excretion from that time must be due to a maturation of this function of the adrenal cortex. The ability of the adrenal cortex to produce corticoids seems to be fully developed from birth. The adrenocortical response to corticotropin as measured by the changes in the urinary excretion of corticoids and 17-ketosteroids was studied in 15 children. The results are compared with those obtained in adults. The changes in corticoids were the same in the two groups but a clear difference was found with regard to the 17-ketosteroids, the increase after administration of corticotropin being much smaller in children than in adults. The determination of the urinary corticoids probably offers a more sensitive and a more direct measurement of the adrenocortical response to corticotropin in children than the determination of 17-ketosteroids. Results obtained with cortisone administration in three children suggest that the 17-ketosteroids in children are derived from a conversion of corticoids. The steroid excretion was altered in an unexplained manner when ascorbic acid was given in addition to corticotropin. In 8 of 10 cases the corticoids decreased during the first three days of ascorbic acid administration, followed again by a gradual increase during the next few days. The 17-ketosteroids changed to a lesser degree but on the whole in a parallel manner. A reversed excretion pattern was found in two cases. Control experiments were performed with three children to whom ascorbic acid was administered alone. The steroid excretion was unaltered in all cases. Cholesterol had no influence on the steroids. In two cases infections occurred during the experiments, and in both cases a typical stress reaction was observed in spite of the simultaneous administration of corticotropin.

Acta Medica Scandinavica, Stockholm

145:1-78 (No. 1) 1953

Reflex Vasodilatation Test in Patients with Periarthrosis Humero-Scapularis and the "Shoulder-Hand Syndrome." E. F. Mogensen.—p. 1.
•Corpus Luteum Hormone in Treatment of Biliary Dyskinesia, and Especially of the Postcholecystectomy Syndrome. E. Adlercreutz.—p. 15.
Experimental Investigations Using the Method of Miller and Sayers on Effect Upon Animals of Cemented Tungsten Carbides and the Powders Used as Raw Material. K.-D. Lundgren and Å. Swensson.—p. 20.
Case of Paroxysmal Auricular Fibrillation in Acute Nicotine Poisoning. B. von Ahn.—p. 28.
Lipid Content of Prostatic Secretion in Adolescent and Aged Males and Its Relation to Acid Phosphatase Activity. K. Iversen.—p. 34.
Antianemic Activity of Alkali-Treated Crude Liver Extract. G. Östling, W. Nyberg and R. Gordin.—p. 40.
Cortisone and Corticotropin Treatment in Insuloma. M. Osnes and R. K. Thorsen.—p. 44.
Some Investigations Concerning the Appearance of Tendency to Bleeding in Connection with Treatment with Para-Aminosalicylic Acid (P. A. S.). A. Kristenson.—p. 52.
Erythromyelosis: Review and Report of a Case in a Benzene (Benzol) Worker. N. I. Nissen and A. Søeborg-Ohlsen.—p. 56.
Choice of Indifferent Electrode in Study of Electrocardiographic After-Potentials. A. Carlsten.—p. 72.

Corpus Luteum Hormone in Treatment of Biliary Dyskinesia.—Biliary dyskinesia in patients who have not been operated on may be defined as a disturbance in the reciprocal relations between the motility of the gallbladder and that of the sphincter of Oddi. Delayed emptying of the gallbladder is a common radiological finding and may be found in patients without symptoms, in patients with symptoms of dyspepsia, and in patients with biliary colic. Biliary dyskinesia, as shown by delayed emptying, is frequently only one manifestation of general dyskinesia in the gastrointestinal and genitourinary tracts, and may be associated with other conditions such as peptic ulcer, spastic colitis, pancreatitis, carcinoma, and renal calculus. Hormonal influences are known to be responsible for biliary dyskinesia occurring in women in connection with menstruation and during pregnancy. Intensification of dyskinetic symptoms in the digestive tract before menstruation may be due to a disturbance in the estrogen-progesterone balance, or to a relaxing effect exercised by the corpus luteum hormone on smooth muscle in the organs connected with the genital apparatus by reflex nervous pathways. Corpus luteum therapy was tried in 27 women, aged 30 to 76, 11 presenting the postcholecystectomy syndrome with typical biliary colic and the other 16 having gallbladder dyskinesia of the delayed emptying type. Premenopausal patients received one injection of 10 mg. of progesterone (Progestin) once a month from 8 to 15 days before the beginning of the menstrual period; in some cases the dose was increased to two injections monthly. Menopausal and postmenopausal patients received one injection weekly for three weeks. A period of waiting then followed, after which in some cases injections were resumed at longer intervals. Striking improvement or complete relief of symptoms was obtained in all but six cases. Seven of the 11 patients with the postcholecystectomy syndrome in particular became symptom free. The fact that postmenopausal women were benefited by the corpus luteum hormone shows that it has a sedative action that may be spasmolytic in character.

Archiv für Psychiatrie u. Nervenkrankheiten, Berlin

190:99-186 (No. 2) 1953. **Partial Index**

Exogenic Psychosis of Schizophrenic Type During School Age: Aspects of Brain-Stem Type of Psychoses. D. Weber and H. W. Klopp.—p. 104.
Duration of Various Forms of Amyotrophic Lateral Sclerosis. R. Hemmer.—p. 127.
*Schizophrenia and Schizophrenia-Like Psychoses in Patients with Brain Lesions. G. Elsässer and H.-W. Grünewald.—p. 134.
Signs of Retrogression in Total Aphasia. A. Brobeil and G. Stallwitz. —p. 166.

Schizophrenia and Schizophrenia-Like Psychoses After Brain Trauma.—In definitely exogenous psychoses a causal connection with brain trauma can usually be established even if there is a long period between the trauma and psychosis. If, however, the psychoses are endogenous, a causal connection with trauma is only rarely demonstrable, unless the brain trauma was especially severe and there is a chronologic relationship (symptoms bridging the interval). Even in cases of severe trauma, the probability of a connection with an endogenous psychosis may be all that can be assumed, because since schizophrenia is relatively frequent, an accidental concurrence of trauma and schizophrenia is always possible. In a review of the literature the authors could find only 26 cases in which a causal connection between a schizophrenia-like psychosis and trauma seemed probable and 16 in which it seemed possible. They add reports of five new cases with schizophrenia symptomatology after severe brain injuries, which were in the frontal brain in four cases and in the temporal lobe in one case. Another group of patients with brain trauma had psychoses that resembled schizophrenia but could be differentiated from it. The authors designate these as symptomatic psychoses. These included two patients with hallucinations, the brain lesions being located in one case certainly and in the other case probably in the right parietal region. There was also one case in which hallucinations concurred with Korsakoff's psychosis that resulted from trauma. Finally the authors present observations on three patients with paranoid psychoses in whom there had been brain trauma followed by convulsive attacks. In these cases it is likewise difficult to ascertain whether the concurrence of trauma and psychosis is accidental or whether the psychosis is a sequel or symptom of the convulsive disorder. In one of the three cases, the last possibility seemed proved, since the psychosis appeared immediately after a series of convulsive attacks and disappeared following surgical removal of a missile and of a cyst from the right temporal region. The authors feel that psychoses in persons in whom trauma to the brain has resulted in convulsive attacks are usually symptomatic, that is, the result of the convulsive attacks; however, definite proof cannot be furnished. In only one of the cases presented did schizophrenia exist also in blood relatives, and in another case it seemed possible that the psychosis was a recurrence of an earlier psychotic attack.

Beiträge zur Klinik der Tuberkulose, Heidelberg

108:353-428 (No. 5) 1953. **Partial Index**

Tuberculin Reaction and Tuberculostatic Therapy. G. Korb.—p. 353.
*Diagnosis of Intestinal Tuberculosis. G. Berg.—p. 361.
Tuberculosis and Work. H. Müller.—p. 367.
Venectasia in Area of Thorax and Its Diagnostic Significance. F. Mlczoch and E. Kopp.—p. 375.

Diagnosis of Intestinal Tuberculosis.—Roentgenographic examination disclosed abnormalities of the stomach in 187 of 700 patients with open pulmonary tuberculosis after a barium meal and after barium enema. Tuberculous changes were suspected in 89 of the 187 patients, but this suspicion was verified in only 27 patients (4%). Of 51 patients who died of open pulmonary tuberculosis and in whom necropsy was performed, 23 (45%) had specific changes in the intestines. Of these 23 patients, 14 while alive had been subjected to roentgenologic examination of the gastrointestinal tract, and in only 8 of these 14 patients had a diagnosis of intestinal tuberculosis been based on the results of this examination. In the remaining six patients in whom pathological changes had not been demonstrated by roentgenologic examination, the latter had been carried out one to four years before death, and intestinal tuberculosis may have developed in the interval between the roentgenologic examination and death. Of the 28 patients in whom necropsy revealed no evidence of intestinal tuberculosis, 16 had been subjected to roentgenologic examination while alive; results of this examination had been negative in all. A total of 242 bacteriological examinations of feces were carried out in 34 patients. Only 2 of 33 cultures obtained from the feces of tuberculous patients with intestinal involvement were positive for Mycobacterium tuberculosis. Studies of the feces according to Ziehl-Neelsen's method did not yield better results. As a result of his experience, the author states that only roentgenologic examination with a subtle technique may offer considerable aid in the diagnosis of intestinal tuberculosis, although the limitations of roentgen diagnosis are revealed by comparison of the roentgenologic and necropsy findings. Early cases of intestinal tuberculosis are rarely detected by roentgenologic examination. Bacteriological examinations of feces with direct preparation or culture should be omitted because they are without value.

Bordeaux Chirurgical

Supplement to No. 4 of October, 1952. **Partial Index**

Surgical Treatment of Arterial Hypertension. P. Broustet and R. Dubourg. —p. 7.
Use and Abuse of Antibiotics in Wounds and Surgical Infections. M. Iselin.—p. 12.
Artificial Hibernation: General Aspects. H. Laborit.—p. 14.
Abdominal Route in Treatment of Cancer of Rectum: Indications and Results. J. Cahen.—p. 53.
Surgical Injuries of Ureter. R. Darget.—p. 100.
*Intratesticular Implantation of Estrogenic Pellets in Prostatic Cancer. Darget, Meyer and Ballanger.—p. 101.

Intratesticular Estrogenic Implants in Prostatic Cancer.—When estrogenic implants are used in the treatment of prostatic cancer, pellets of estrogenic substance are usually placed under the skin. Darget and his associates reasoned that their effectiveness might be increased if they were implanted directly into the tissue on which they are to act, namely, the testis. Experiments on rats confirmed the soundness of this hypothesis and seemed to justify a trial in human subjects. The first patient was a man with a highly malignant prostatopelvic carcinoma who was deriving no benefit from the oral administration of estrogens. The implantation of 100 mg. of diethylstilbestrol into each testis had the following results: the 17-ketosteroids completely disappeared from the urine, the pelvic tumor decreased in size, and there was a general improvement in the state of health. When three months later a unilateral castration was done for control purposes, 67 mg. of the pellets had not been absorbed as yet. The examination of the removed testis showed, in comparison with the biopsy made before the implantation, a nearly complete atrophy of the seminal line and of the interstitial tissue. After having tried this method on 10 patients, the authors believe that the method is not dangerous and is much more effective than the usual subcutaneous implantation.

British Journal of Radiology, London

26:161-216 (April) 1953. **Partial Index**

Critical Analysis of Clinical Value of Angiocardiography in Congenital Heart Disease. J. F. Goodwin, R. E. Steiner, J. P. D. Mounsey and others.—p. 161.
Theoretical Study of Radiation Outputs and Qualities from Beryllium Window Tube Operated at Low Kilovoltages (10-50 kVp). W. A. Jennings.—p. 193.
Sympathicoblastoma (Adrenal Neuroblastoma): with Report of Case. W. D. C. McCrorie and A. Smith.—p. 207.
Radiological Diagnosis of Exomphalos with Report of Case. J. Fawcitt. —p. 210.

British Medical Journal, London

1:687-742 (March 28) 1953

Action of Ovarian Hormones on Uterine Muscle. G. W. Corner and A. Csapo.—p. 687.
Survey of Prescribing in Scotland in 1951. D. M. Dunlop, R. S. Inch and J. Paul.—p. 694.
Urinary Excretion of Pressor Amines in Relation to Phaeochromocytoma. G. P. Burn.—p. 697.
Crohn's Disease Involving Stomach: Report of Two Cases. F. R. R. Martin and R. J. Carr.—p. 700.
*Toxoplasmosis in Relation to Mental Deficiency. J. Burkinshaw, B. H. Kirman and A. Sorsby.—p. 702.
Myxoedema as Cause of Death: Report of Two Cases. H. S. le Marquand, W. Hausmann and E. H. Hemsted.—p. 704.
Pelvic Evisceration with Primary Bowel and Ureteric Anastomoses. G. E. Moloney.—p. 706.
Method of Anaesthesia for Tonsillectomy. B. Kenton and H. M. Parsons. —p. 708.
Aortic Occlusion in Infancy. C. Marks and B. M. Fehler.—p. 709

Toxoplasmosis and Mental Deficiency.—Of 698 mentally deficient patients, most of them children, 55 showed positive toxoplasmin skin and dye reactions. The incidence of positive reactions increased with advancing age. The 55 positively reacting patients were examined physically, ophthalmoscopically, and radiologically for signs of toxoplasmosis. The criteria cited by Sabin in 1948 served as a guide. They include internal hydrocephalus or microcephaly, chorioretinitis with predilection for the macular region, convulsions and other signs of involvement of the nervous system, and cerebral calcification. In two cases eye lesions suggestive of toxoplasmosis were found. Radiologic examination and lumbar puncture showed nothing suggestive of toxoplasmosis. In none of the cases could the mental defect be definitely attributed to toxoplasmosis. In some cases other causal factors were present, for example, epiloia (tuberous sclerosis), phenylketonuria, or mongolism. It was concluded that in mental institutions or elsewhere a positive toxoplasmin reaction is acquired like a positive Schick reaction with increasing age and is very infrequently associated with clinical toxoplasmosis, and that toxoplasmosis is not a common cause of mental defect.

Bruxelles-Médical, Brussels

33:697-748 (April 5) 1953. Partial Index

*Endometrial Tuberculosis. H. Bedrine and P. Houlne.—p. 707.
Technique of Gastric and Intestinal Sutures. J. Bastin.—p. 714.
Erroneous Reporting of Deaths from Tuberculosis and Cancer and Its Repercussions on Statistics Relating to Causes of Death. H. Schwers. —p. 725.

Endometrial Tuberculosis.—Apparently healthy young women complaining of menstrual disturbances or sterility are sometimes found to have endometrial tuberculosis. Endometrial biopsy indicates the diagnosis but does not establish it, because various other conditions may give rise to pseudotuberculous manifestations. Attempts to demonstrate Koch's bacillus by guinea pig inoculation and direct cultivation have hitherto proved unreliable, but Sevin of the Pasteur Institute at Lille developed a method of using endometrial fragments in Petragnani and Dubos mediums that provides accurate and dependable diagnostic information. Positive cultures confirmed a diagnosis of endometrial tuberculosis that was indicated by biopsy in eight patients, and in three others in whom the biopsy findings were negative tuberculosis was discovered when routine cultures proved positive. The value of endometrial biopsy as a diagnostic procedure is shown by the fact that Koch's bacilli were demonstrated in all cases in which the biopsy findings were positive; when the findings are doubtful or negative, the information obtainable from the cultures is invaluable. Endometrial cultures may also be used to determine the efficacy of treatment. The best proof of cure in patients in whom sterility is the result of endometrial tuberculosis is the establishment of a normal intrauterine pregnancy; failing this, however, reduction in bacillary virulence or conversion of cultures from positive to negative is an excellent indication of the progress being made. Streptomycin and *p*-aminosalicylic acid, given systemically and by intrauterine instillation, is the treatment preferred by the authors, but care must be used in applying *p*-aminosalicylic acid locally because it causes pain. The latency, benignity, and surprising lack of dissemination characteristic of endometrial tuberculosis have been attributed to low bacillary virulence, but the bacilli recovered from the cultures in the authors' cases have all been normally virulent. A recent suggestion by Aschheim that the stroma of the endometrium may form part of the reticuloendothelial system, which is known to be highly resistant to infection, offers a possible explanation for these phenomena.

Deut. Ztschr. f. Verdauungs- & Stoffwechselkr., Leipzig

13:49-144 (Nos. 2 & 3) 1953. Partial Index

*Osteoarthropathia and Osteoporosis Alcaptonurica. M. Bürger and W. Schulze.—p. 49.
Studies on the Metabolism of Regeneration. M. Bürger and J. Nöcker. —p. 74.
Metabolism of Glucuronic Acid. G. Brox.—p. 99.
The Problem of Glycogen Storage Diseases. E. and V. Böhlau.—p. 115.
Effect of Insulin on the Carbohydrate Metabolism in Patients with Hepatitis. F. Meythaler and G. Lobenhofer.—p. 129.

Alkaptonuric Osteoarthropathia and Osteoporosis.—Bürger and Schulze call attention to the localization of ochronotic pigment deposits in the so-called bradytrophic tissues on the basis of observations on three patients with alkaptonuria. They show that the degenerative pigment deposits that are characteristic of ochronosis are found particularly in tissues that have relatively few capillaries, and to which they apply the term bradytrophic. Ochronosis is to a certain extent a method of vital staining of the bradytrophic tissues and corroborates the impression gained by chemical analysis. This has shown that these tissues are traps for waste products, that is, as they become dehydrated or consolidated as the result of aging, they take up by diffusion deposits of metabolic wastes. Apparently a considerable period is required for the formation of ochronosis, and not every patient with alkaptonuria lives long enough for ochronosis to become manifest. The three patients with alkaptonuria gave the authors the opportunity to study changes in the chondro-osseous system. They found that the degenerative changes were not limited to the syndesmoses or to the articular cartilage, nor were the bone changes dependent only on primary changes in the cartilages. Even bones that were far removed from joints showed morbid structural changes, which roentgenologically gave the impression of a strand-like osteoporosis. The authors conclude that the sequel of prolonged alkaptonuria is osteochondroarthrosis deformans. The severe osteoporosis found in these patients can be traced to the chronic acidosis due to homogentisic acid.

Dia Médico, Buenos Aires

24:225-256 (March 16) 1953. Partial Index

Technic of Dilatation of Esophagus. R. Finochietto.—p. 225.
*Isoniazid in Tuberculous Meningitis. C. J. García Díaz and F. C. Pfister.—p. 229.
Hepatic Artery. J. Markowitz.—p. 234.
Cytomorphologic Theory of Formation of Blood. S. H. Wajda.—p. 249.

Isoniazid in Tuberculous Meningitis.—From his experiences with the use of isoniazid in the treatment of 15 children with tuberculous meningitis the author concludes that this drug is of greater value than streptomycin in the treatment of the disease. To prevent the development of resistance of the tubercle bacilli to the drug, it is advisable to give it with streptomycin or *p*-aminosalicylic acid. When the drug is given extrathecally, the daily dose for children is 7 to 10 mg. per kilogram of body weight. Daily doses of 15 or 20 mg. can be given extrathecally only in late, acute cases and for a short time. Intrathecal administration is usually unnecessary, as the drug easily permeates the blood-brain barrier. It seems to be indicated only in cases observed late in the course of the disease, in some patients in coma, and probably in some infants. The daily intrathecal dose is 0.50 to 0.75 mg. per kilogram of body weight in adults and 0.5 to 1 mg. per kilogram of body weight in children. To prevent recurrences from reactivation of either meningeal or extrameningeal tuberculous foci, it is advisable to give the treatment without any interruption for as long as necessary (no less than five months in the cases observed by the author). Isoniazid seems to prevent blockage of the cerebrospinal fluid but is of no avail for controlling established blockage, which calls for neurosurgery.

Edinburgh Medical Journal

60:113-148 (March) 1953

Pneumonia. J. Crofton.—p. 113.
Complacency or Conquest? R. Y. Keers.—p. 128.

60:149-200 (April) 1953. Partial Index

Isotopes as an Aid to Diagnosis. S. Rowlands.—p. 149.
Tuberculous Disease of Cervical Lymph Glands. J. A. Ross.—p. 184.

Journal of Hygiene, London

51:1-144 (March) 1953. Partial Index

Phage Typing of Staphylococcus Aureus. A. M. Hood.—p. 1.
Differentiation of Sero-Fermentative Types in Bacterium Coli 0 Group 55. J. Wright and R. Villanueva.—p. 39.
Reaction of H-Substance with Rabbit Antisera. R. G. S. Johns and J. R. Marrack.—p. 55.
Incidence and Penicillin Sensitivity of Staphylococcus Aureus in Nose in Infants and Their Mothers. G. B. Ludham.—p. 64.
Clostridium Welchii Food Poisoning. B. C. Hobbs, M. E. Smith, C. L. Oakley and others.—p. 75.
Routine Typing of Clostridium Welchii. C. L. Oakley and G. H. Warrack.—p. 102.

Journal d' Urologie, Paris

58:807-934 (No. 12) 1952

Thirty-one Nephrectomies for Aplasia or Atrophy. J. Cibert and J. Collenet.—p. 807.
*One Hundred Prostatectomies According to Hryntschak's Technique. J. Foret and C. Maquinay.—p. 817.
Ureter Stump After Nephrectomy for Tuberculosis. L. A. Surraco. —p. 829.
Histological Classification of Cancer of Kidney; Respective Incidence of Different Varieties. L. Fruhling and E. Blum.—p. 836.

Prostatectomy According to Hryntschak's Technique.—Foret and Maquinay performed 100 prostatectomies with the patients under high peridural anesthesia, preferably between the 8th and 10th dorsal vertebra, using Hryntschak's technique. This technique involves a suprapubic, transvesical approach with attachment of the site of the incision in the bladder to the aponeurosis of the rectus muscle to prevent soiling of the perivesical tissues. The adenoma is then enucleated with the finger while the prostate is steadied by the assistant's fingers in the patient's rectum. Two supporting sutures of chromic absorbable surgical suture no. 1 are placed at the circumference of the neck at positions corresponding to 2 o'clock and 10 o'clock on the face of the clock. The posterior lip of the neck is resected with scissors. A whip-stitch suture is then started at the position corresponding to 2 o'clock following the entire circumference of the neck, being crossed at each point and terminated at the mooring point corresponding to 10 o'clock. The whip-stitch provides a more complete suture, securing absolute hemostasis not only of the pedicles of the prostate but also of the small vessels that are bleeding on the surface of the cross section. The bladder is closed with purse-string sutures using chromic absorbable surgical suture no. 4. Systematic vasectomy is carried out and a catheter fastened at the prepuce; the urinal connected with the catheter is emptied every half hour for at least 48 hours to make sure the catheter is permeable. Except for eight patients with severe heart disease, all the other patients were allowed to get out of bed on the day after the operation. Only one of the 100 patients had postoperative phlebitis and only one died of pulmonary embolism. Sixty-six patients of an average age of 67 years obtained a complete cure with definite closure, surgical healing of the wound, and normal micturition within 10 days after the surgical intervention, and had not the slightest annoyance later on. In these patients the catheter was left in place for four days on the average. In 10 patients recovery within 10 days was incomplete because of minor complications, i. e., parietal suppuration in 3, incontinence in 2, broken catheter in 1, phlebitis in 1, secondary vesical lithiasis in 1, and abnormal dilatation of the prostatic urethra in 2. Five patients apparently recovered within 10 days, but a second operation became necessary later on; postoperative hemorrhages occurred in three of these patients (two weeks after the operation in one). Urinary fistulization occurred in 15 patients; of 25 patients with urinary infection before the operation, fistulization occurred in 8, while only 7 of the 75 patients without infection had a postoperative urinary fistula. There were four deaths within half an hour to 17 days after the intervention, resulting from sudden cardiac failure, myocardial infarction, pulmonary embolism, and bronchopneumonia respectively. A large number of the patients obtained a rapid and complete cure without any suffering. Using Hryntschak's technique the space of Retzius is not opened, and not a single case of pubic osteitis has been reported.

Lancet, London

1:607-656 (March 28) 1953

Influence of Language on Medicine. J. Z. Young.—p. 607.
*Kernicterus and Prematurity. A. D. T. Govan and J. M. Scott.—p. 611.
Ligation of Splenic and Hepatic Arteries in Portal Hypertension. A. J. S. McFadzean and J. Cook.—p. 615.
*Intra-Aortic Blood-Transfusion. H. A. Haxton.—p. 622.
Trial of Isoniazid in Rat Leprosy. J. C. Cruickshank.—p. 624.
Infected Arteriovenous Fistula in the Lung. F. H. Stevenson.—p. 626.
The Kidd (Anti-Jk^a) Haemagglutinin: Third Example. G. R. Milne, J. W. Wallace, I. W. Ikin and A. E. Mourant.—p. 627.
Electrocardiographic Changes After Nephrectomy. C. P. Petch.—p. 627.
Congenital Absence of Gall-Bladder, with Stone in Common Bile-Duct. G. Mouzas and A. K. Wilson.—p. 628.

Kernicterus and Prematurity.—Kernicterus has been attributed to sepsis, to hepatitis, to an undetermined toxin, and, more recently, to Rh immunization. The view commonly held today is that expressed by Claireaux in 1950 when he said that "nuclear jaundice is always associated with icterus gravis neonatorum resulting from hemolytic disease." Recently, however, doubt has been cast on the validity of such statements by investigators who observed kernicterus in babies without pathological or serologic evidence of hemolytic disease. In this paper Govan and Scott report observations on 10 infants with kernicterus in whom there was no Rh incompatibility between mother and fetus. All were premature, the average birth weight being 3 lb. (1,360 gm.) and the average duration of pregnancy 32 weeks. In each case there was some complication either during pregnancy or at the time of birth. In four cases there had been antepartum hemorrhage due to placenta previa. Severe preeclampsia affected the mothers of two other infants. The cord prolapsed in one case during labor and had to be replaced. Another infant was the second of twins presenting by the breech, and version had to be undertaken before delivery could be effected. A spontaneous but rather precipitate breech delivery occurred in another case. In the 10th case the labor was prolonged for 86 hours. The infants were feeble at birth, cyanosed, and difficult to resuscitate. All were treated by the usual methods for premature babies. Heat and oxygen were supplied, and each received vitamin K and penicillin. Jaundice appeared on the 4th day in these children, and the time of death varied from the 4th to the 9th day of neonatal life. These 10 cases were selected from a larger series because they exhibited the typical changes and there was no question of blood incompatibility. All had negative reactions to the Coombs' test and the blood-groups of mother and child, as regards both ABO and Rh factors, were similar. The brain lesions found had the same anatomical distribution and histological appearance as those found in kernicterus due to erythroblastosis. Similar lesions have been found in premature infants dying during the first three days of neonatal life before jaundice appeared, indicating that pigmentation is a secondary feature. From a comparison with lesions found in known states of asphyxia, the authors are led to the conclusion that damage to the brain occurs at the time of birth and is due to anoxia. The lesions of erythroblastosis are probably of similar origin.

Intra-Aortic Blood Transfusion.—There is evidence that for blood transfusions in severe oligemic shock the intra-arterial route has advantages over the intravenous route, but infusions into peripheral arteries involve the danger of spasm and thrombosis. Intra-aortic infusion, which Haxton has been using for 18 months, is free from such difficulties. He conceived it in the course of hundreds of lumbar paravertebral sympathetic blocks, in which he observed that the aorta could be easily punctured from the left side and that no sequelae resulted. Transfusion into the abdominal aorta at the level of the third lumbar vertebra with a special stepped needle has proved simple and free from complications in 20 cases. In 3 of the 20 patients, whose ages ranged from 2 days to 84 years, the intra-aortic transfusion was repeated. Owing to the serious nature of the illness, there have been some fatalities; but in only one case did the transfusion appear to have a deleterious effect. In cases with repeated gastrointestinal hemorrhage this method rapidly restored the general condition and allowed the safe performance of early operation. In other cases with acute oligemia rapid improvement followed transfusions of moderate size. Transfusion can be made under direct vision into the aorta during thoracic and abdominal operations should the need arise. The necessary apparatus should be ready and sterile for immediate use.

Medical Journal of Australia, Sydney

1:245-280 (Feb. 21) 1953

Epidemiology of "Q" Fever: A Review. E. H. Derrick.—p. 245.
World Developments in Clinical Pathology. N. M. Gutteridge.—p. 253.
Rupture of Uterus: Review of 24 Cases at Royal Hospital for Women, Paddington, During Last 20 Years. T. H. Small.—p. 257.
Treatment of Gonorrhoea with Two Grammes of Terramycin in Divided Dosage Over 24 Hours. R. R. Willcox.—p. 260.
Newer Methods of Electrical Testing in Nerve Lesions (I-T Curves). L. T. Wedlick.—p. 261.

1:281-320 (Feb. 28) 1953. Partial Index

Observations on Use of Fluorine for Partial Control of Dental Caries. N. E. Goldsworthy.—p. 281.
Significance of Lymphadenopathy. A. E. McGuinness.—p. 285.
Significance of Generalized Lymph Node Enlargement. V. J. McGovern. —p. 288.
Treatment of Peptic Ulceration. S. Goulston.—p. 291.
Surgical Aspects of Treatment of Peptic Ulcer. F. F. Rundle.—p. 293.
Use of Controlled Hypotension Combined with Local Use of Adrenaline as an Aid to Fenestration Operation. D. O'Brien and W. H. J. Cole. —p. 300.

Medicina, Buenos Aires

13:1-72 (Feb.) 1953. Partial Index

Studies on Formation of Ascites (Effect of Paracentesis). A. Agrest and A. J. Roncoroni.—p. 1.
*Effects of Cation Exchange Resins on Arterial Hypertension, Congestive Heart Failure, and Edema of Various Causes. L. de Soldati and F. Montoreano.—p. 19.
Experimental Unilateral Pulmonary Embolism with Closed Thorax. A. Agrest, A. Lanari and A. J. Roncoroni.—p. 51.

Cation Exchange Resins.—Ammonium-potassium cation exchange resins were used in the treatment of a group of 16 patients, which included seven patients with essential hypertension, seven with congestive heart failure with edema, and two patients with cirrhosis of the liver with ascites and edema. Patients with symptoms of renal insufficiency were not included in this group. The drug was given in daily doses of 50 gm., which was given in three fractional doses at regular intervals, for from 1 to 20 weeks. The daily amount of sodium allowed in the diet of the patients was between 800 and 1,000 mg. The tolerance of all patients to the drug was excellent. In none of the patients were symptoms of acidosis, hypokalemia, and salt depletion observed. In the seven patients with essential hypertension, the symptoms greatly improved. The decrease in the blood pressure was slight and transient. In the only patient in whom hypertension markedly diminished, the blood pressure returned to its pretreatment level on the fifth day after discontinuation of treatment. In the seven patients with congestive heart failure, from a selected group of patients in whom the administration of cardiotonics, diuretics, and a low sodium diet had previously failed, the treatment with cation exchange resins resulted in increasing diuresis and in diminishing edema. In the two cases of cirrhosis of the liver, ascites, and edema diminished. The authors compare the effects of the treatment with those they obtained in a group of 700 patients with essential hypertension from the administration of the rice diet, as previously reported. They conclude that cation exchange resins have effects similar to but not as good as those obtainable with the rice diet in essential hypertension. Continuous or periodic cation exchange resins treatment is of value as an adjunct to a low sodium diet when the latter has to be given for a long time. The treatment is of value in cases of congestive heart failure with edema and of cirrhosis of the liver with ascites and edema that do not respond to standard treatment. In these cases the resins potentiate the effects of mercurial diuretics and at the same time make the diet more palatable than the strict low sodium diet.

Minerva Medica, Turin

44:437-460 (Feb. 21) 1953. Partial Index

General Aplastic Myelosis, and Classification and Therapy of Hemorrhagic Syndromes and Diseases: One Case. G. Izar.—p. 437.
Lederer's Hemolytic Anemia: One Clinical Case with Nonhemoglobinic Iron in the Erythrocytes. E. Pagliardi.—p. 443.
*Streptomycin Therapy in Adults with Tuberculous Meningitis. P. Nicolaj. —p. 447.

Streptomycin in Adults with Tuberculous Meningitis.—Nicolaj reviews the results in all patients older than 13 years who were admitted to the University of Bologna pediatric clinic (streptomycin section) with tuberculous meningitis from 1947 to 1951 and had streptomycin therapy. A total of 45 children were admitted but only 33 were treated only by the author, 12 having had previous treatment elsewhere. Twenty-seven patients recovered; one has been well for more than four years, nine for more than three, two for more than one year, and the others for less than one year. There was a relapse in three patients, but two of them recovered with streptomycin therapy, and the third, who was still being treated at time of writing, had improved and had a normal fluid picture. The author used streptomycin diluted in water (1 gm. in 20 cc.), and at time of administration he diluted it again in 1 to 2 cc. of lukewarm isotonic sodium chloride solution. He used both the intrathecal and the intramuscular routes, since the intramuscular route alone had given negative results. Intrathecally the dose was 50 to 80 mg. daily for three months; often to the patients whose condition was severest two intrathecal injections were given every day in doses of 40 to 50 or 60 mg. each time for 15 to 30 days. After three months, if the temperature had returned to normal and the fluid picture was improved, the drug was given every two days and this was continued for two months. Then the time interval between injections was gradually increased until therapy was discontinued in about 8 to 10 months. When onset of a spinal block was suspected, the drug was given by the suboccipital route in doses of 15 to 20 mg.; from 90 to 100 injections were, as a rule, sufficient to prevent or to cure the block. This route should be limited to particular cases only and mainly to those in which the lumbar route is contraindicated. Dihydrostreptomycin rather than streptomycin was given intramuscularly in doses of 10 mg. per kilogram of body weight, with a daily total dose of from 600 to 800 mg. in three divided doses every eight hours. About 8 to 10 gm. of *p*-aminosalicylic acid was also given daily in three divided doses in eight day courses, with a treatment-free interval of 8 to 10 days between each course. When the drug was not tolerated by a few patients, its administration was discontinued. Other adjuvants were iodine, given orally or by injections, and vitamins. Tuberculous meningitis in adults differs from this disease in children in that it has a longer course, spinal block occurs more frequently, and endocrine disturbances, such as excess weight and striae cutaneae distensae, are commoner. A favorable prognosis rests mainly on early diagnosis and early treatment. About 80% of adults with tuberculous meningitis may recover with timely and individualized therapy.

Practitioner, London

170:329-440 (April) 1953. Partial Index

Modern Concept of Allergy. F. M. Rackemann.—p. 333.
Present Status of Desensitization in Treatment of Allergic Conditions. D. Harley.—p. 338.
Cortisone, ACTH and Allergic Reaction. W. B. Sherman.—p. 347.
Antihistaminic Drugs in Treatment of Allergic Conditions. A. W. Frankland.—p. 355.
Clinical Value of Skin Tests in Allergic Conditions. R. S. B. Pearson. —p. 361.
Upper Respiratory Infection in its Relation to Allergy. C. Hamblen-Thomas.—p. 368.
Drug-Idiosyncrasy and Drug Sensitization. G. Discombe.—p. 373.
Some Psychiatric Aspects of Asthma. D. Leigh.—p. 381.
Management of the Climacteric. W. Hunter.—p. 386.

Presse Médicale, Paris

61:361-380 (March 14) 1953. Partial Index

*Essential Arterial Spasms. C. Lian, Khalili and Lumbroso.—p. 361.
Assessment of Serum Oxytocic Potency in Recurring Endocrine Abortions. R. Suzor, P. Juret, P. Poli-Marchetti and J. Bliard.—p. 363.
*Combination of Three Sex Hormones, Estradiol, Progesterone, and Testosterone, in Treatment of Menopause. E. Juster and E. Guiard. —p. 365.
Late Results of a Duodenojejunostomy. A. Ameline and N. Loiseau. —p. 367.

Essential Arterial Spasms.—Essential arterial spasms may occur in widely varying areas in patients who are neither hypertensive nor aged. No visible lesion can be found to explain them. They are most frequent in the extremities, where they produce numbness, cold, or even gangrene; in the retinal vessels, where they lead to loss of vision lasting for some minutes, or to partial vision in which only part of a person or object is seen; and in the cerebral vessels, where they result in fleeting, limited paresis of an arm, a leg, or the tongue. Other symptoms less suggestive of arterial spasm are anxiety, dizziness, perception of arterial pulsations, and abdominal pain. The spasms sometimes follow fatigue or emotional strain, but they may occur without any apparent cause, or, as in most cases, they may be precipitated by exposure to cold. The attacks may occur at frequent intervals, or a single episode may be followed by years of latency; usually, however, there are several attacks separated by intervals of a few months. Some patients will always be affected in the same area; in others, several areas may be involved, simultaneously or successively. None of the patients in the authors' series had arteritis in the affected member. Arterial oscillations and sounds and arterial tension were always normal; the arteries were supple and the heart was sound. Most patients were between 35 and 50 when the first spasms occurred. Differential diagnosis should be aimed at eliminating the symptomatic spasms accompanying various conditions such as Raynaud's disease. Hyperexcitability, either of the arterial wall or of the sympathetic nervous system, may be responsible for the occurrence of essential spasms. Treatment is necessarily symptomatic, consisting of administration of sedatives, vasodilators, and antispasmodics; sympathetic infiltration or sympathectomy may be attempted when the cerebral vessels are involved. The long-term prognosis must be guarded, but the physician should endeavor to relieve the anxiety that often accompanies the condition.

Combination of Three Sex Hormones in Treatment of Menopause.—Administration of combined estradiol, progesterone, and testosterone, intramuscularly or in the form of lozenges to be dissolved under the tongue, to patients with menopausal disturbances produced results equivalent and in some cases superior to those of intensive estrogen therapy, without the undesirable side-effects of synthetic estrogens. Treatment can readily be adjusted to the patient's requirements, and may be continued for long periods without exposing her to the dangers of hormone supersaturation. Hot flashes, severe psychic manifestations, and metabolic disturbances disappear rapidly, and the patient recovers the vitality and balance of character and feeling she had before the menopause. The injectable preparation contains estradiol, 3 mg., progesterone, 20 mg., and testosterone propionate, 25 mg., dissolved in 1 cc. of oil. Injections are needed every one or two weeks at first, but as treatment progresses and the patient's condition improves, the intervals may be lengthened. Patients who have been treated with the combined hormones are unwilling to return to synthetic estrogen therapy, which often produces disagreeable side-effects. Oral administration of lozenges containing ethinylestradiol, 0.005 mg., anhydroxyprogesterone, 5 mg., and methyltestosterone, 2.5 mg., is equally effective and very convenient. The initial dose may consist of from 3 to 5 lozenges daily, but later one or two will usually suffice to maintain the patient in normal neuroendocrine balance. Use of the combined sex hormones in premenopausal patients with normal or subnormal menstrual cycles is not indicated.

Revue Neurologique, Paris

87:515-662 (No. 6) 1952

*Notes on Lessening of Neurosurgical Operative Insult by Drug Synergy. E. Woringer, J. Schneider, G. Brogly and others.—p. 515.
Total and Subtotal Hemispherectomy. Reflections on Operative Technique. M. Feld.—p. 525.

Use of Autonomic Drugs and Refrigeration in Neurosurgery.—Electroencephalographic studies show that the effect of certain drugs, such as Diparcol (10-[2-diethylaminoethyl]-phenothiazine) and mephenesin (Myanesin), which "potentiate" anesthetics, is both central and peripheral. Their action in producing variations in neuronic excitability is analogous to that of anesthetics and, by the same mechanism, they also affect the higher vegetative centers, causing the body to lose some of its homeostatic reflexes and its ability to react to environmental influences. Gradual refrigeration can then be successfully carried out, and in the resulting state of artificial hibernation postoperative and other disturbances are greatly reduced. Studies of cerebrospinal fluid pressure following administration of the potentiating drugs show no increase in the pressure, which might embarrass a neurosurgeon in opening a dura mater distended by the presence of a subjacent tumor when, as often happens, artificial hibernation must be instituted preoperatively. Application of this procedure to four patients suffering from severe concussion whose death might be expected within six hours and in whom operative intervention would have been useless resulted in immediate improvement. Their symptoms were relieved, consciousness was partially restored, and life was prolonged for three or four days. Patients in poor condition undergoing operations for removal of cerebral tumors and others in whom the proximity of the operative field to the diencephalic centers made postoperative disturbances probable had a remarkably smooth course when placed under hibernation for the first four days. Pulse, blood pressure, and respiration were nearly normal, and the temperature did not rise above 38 C when the hibernation was discontinued. Constant supervision by trained medical personnel is essential for the successful use of this method, which promises to be invaluable in neurosurgery.

Riforma Medica, Naples

67:141-168 (Feb. 7) 1953. Partial Index

*Importance of Some Painful Syndromes of the Extremities in Diagnosis of Pulmonary Cancer. E. Ruggieri.—p. 141.
A New Method for Taking and Studying Tongue Impressions. F. Campeti. —p. 147.
Epidemiology and Prophylaxis of Brucellosis with Particular Reference to Course of This Infection in the Benevento Province. A. Matera. —p. 149.

Pains in Extremities as Only Early Diagnostic Sign of Pulmonary Cancer.—Sometimes the initial clinical phase of cancer of the lung may be represented by pains in the extremities long before respiratory symptoms appear. These pains were the only complaint of 26 of the author's 168 patients in whom cancer of the lung was later found. Ruggieri classifies these pains into three groups. The first comprises those resembling the pains of the syndrome of scapulohumeral periarthritis or Duplay's syndrome. The apex of the shoulder is the focal point and from there the pain radiates along the arms, involving sometimes the elbow, the forearm, the hand, or the fingers. In some cases it may radiate to the anterior region of the thorax as far as the breast and in others along the supraclavicular pit to the neck and the back of the neck. Objective examinations do not reveal abnormalities in the shoulder or in any of the painful areas, palpation and pressure over the focal point do not accentuate the pain, and all passive and active movements are normal. This syndrome was the early diagnostic sign of pulmonary cancer in 15 (8.9%) of the author's patients, and the neoplasm was located near the mediastinum in 12 of them. Differential diagnosis from Pancoast's syndrome is easy, since these patients do not have dystrophy of the muscles of the arm and hand nor Horner's syndrome and the cancer is found near the apex of the lung. It cannot be confused with arthritis, arthrosis, and rheumatic diseases, since in these there is always some functional impairment. Nor can it be confused with periarthritis, since this is always caused by a previous trauma. The second group of pains involves the joints of the elbow, wrist, knee, and ankle of one or all extremities. The intensity of the pain is variable, being more pronounced during humid and rainy days and occurring always during the day. Results of objective examinations of the extremities are always negative, all the movements are normal, the periarticular tissues are not altered, and there is never elevated temperature. Only asthenia of the aching extremities is present. Diagnosis of cancer of the lung was established in five (2.9%) of the author's patients on the basis of this syndrome alone. The third group comprises pains suggesting hypertrophic pulmonary osteoarthropathy. The difference lies in the fact that the radiological picture does not reveal alterations of the articular heads. This syndrome was the only early sign of cancer of the lung in six (3%) of the author's patients. The mechanism of action of these syndromes is still obscure, but since they may indicate cancer of the lung long before any respiratory disturbance appears, a tentative diagnosis of this entity should be made whenever patients complain of pains in the extremities but there are no radiological or objective alterations.

67:169-196 (Feb. 14) 1953. Partial Index

*Acute Pulmonary Edema Caused by Penicillin. A. Strano.—p. 169.
Correlations Between Tuberculous Infection and Appendicitis. M. S. Manfredi.—p. 172.
Carcinoma of Esophagus. M. Palmisano.—p. 176.
Simple Apparatus for Blood Transfusions. P. Scaduto.—p. 180.

Acute Pulmonary Edema After Penicillin Administration.—A 39-year-old woman with a five year history of vasomotor rhinitis once or twice a month, especially during the spring and fall, and concurrent attacks of dry cough and mild retrosternal pains in the entire thorax, suffered traumatic lesions to the larynx 10 months before admission to the clinic. On that occasion she received 1,000,000 units of penicillin without any side-effect. Later she was given the drug again in an aerosol to control one of the attacks, but the therapy had to be discontinued after the first dose because acute pulmonary edema developed associated with bronchial spasm, increased arterial pressure, tachycardia, and cyanosis. These regressed with administration of morphine, atropine, and camphor. In the following months the asthma-like attacks became more frequent and severer, and the patient, without consulting the physician, gave herself an intramuscular injection of 200,000 units of penicillin. Severe cyanosis, intense cough, at first dry and thereafter productive of a reddish sputum, and loss of consciousness followed. Examination revealed acute pulmonary edema with bronchial spasm and a blood pressure of 160/90 mm. Hg. About two hours after the withdrawal of 400 cc. of blood and the administration of morphine, camphor, atropine, and oxygen, the symptoms disappeared. The reactions to repeated intradermal injections of penicillin were always highly positive. The patient was discharged on March 15, 1951, and has had only one attack since. This occurred after she had been accidentally exposed to patients receiving penicillin in an aerosol.

Rivista di Clinica Pediatrica, Florence

51:1-96 (Jan.) 1953. Partial Index

*Treatment of Tuberculous Meningitis. A. Paci.—p. 1.
Action of Cortisone and Gonadotropic Hormones in Eczema of Nurslings. G. Bartolozzi.—p. 23.
Small-Cells Lymphosarcoma Evolving Into Acute Leukemia. A. Fois. —p. 41.
Studies on Eventual Synergy of Procaine and Cortisone. L. Barilli and R. Rossi.—p. 46.

Streptomycin in Tuberculous Meningitis.—Results are reviewed of streptomycin therapy in 69 children with tuberculous meningitis who were treated at the University of Pisa pediatric clinic from the end of 1947 to the time of writing. All the patients were less than 12 years old. Of the 24 patients who were treated from October, 1947, to August, 1948, only one recovered completely and two recovered after a relapse. These poor results are attributed to the meager knowledge of the drug at that time and to its scarcity. From September, 1948, to February, 1950, more streptomycin became available and therefore the results were better. Of the 19 patients admitted during this period, 5 could not be treated because of their severe general condition that resulted in death a few days later. Eight have recovered and are well; one recovered but died suddenly after his transfer to another institution; and five died. During this period the drug was injected into the cisterna magna. From March, 1950, to the date of writing 26 patients have been treated. Of these, 17 have recovered and are well; 2 had been treated for less than 10 days when death occurred; 2 have improved but are still under treatment; and 5 died. The good results are attributed mainly to the method of administration of the drug and to new adjuvants. At this time the drug was given daily by the lumbar route in doses of 30 to 35 mg. and then 10 to 12 hours later by the suboccipital route in doses of 20 to 25 mg. After the initial improvement, the drug was given by either route until the patient was completely recovered. The therapy was continued, however, and was slowly tapered off within two to three months. During the entire period of treatment streptomycin was given intramuscularly in daily doses of 20 mg. per kilogram of body weight to children older than 2 years and 30 mg. per kilogram of body weight to nursing infants. The treatment period lasted generally for an average of 150 to 180 days. In the entire series of 69 patients a total of 25 children have recovered and remained well; 1 has been well for 3 years, 7 for 2 years, 6 for more than 1 year, and 11 for less than 1 year. Their general condition is good, and development and growth are normal in almost all of them. One patient, who had become deaf during the treatment, is still deaf and is mentally retarded, and a permanent mental deficiency is present in three others. In two of these hydrocephalus had developed during the course of the disease, and one has pronounced sequelae to spastic hemiplegia. Generally the sequelae to the nervous system lesions that occurred during the course of the disease are of little importance and disturbances of motor functions are not too pronounced.

Scalpel, Brussels

106:279-308 (March 14) 1953. Partial Index

Silent Potts' Disease. B. Blankoff.—p. 279.
*Severe Acute Hemolytic Anemia Following Ingestion of Sodium Ascorbate-Para-Aminosalicylic Acid Solution. M. Lust.—p. 287.

Hemolytic Anemia Following Ingestion of Special p-Aminosalicylic Acid Solution.—Several cases have recently been reported in which the administration of *p*-aminosalicylic acid to children with tuberculous lesions has resulted in severe attacks of acute hemolytic anemia, accompanied by shock, nausea, and occasionally vomiting. Enlargement of the liver and sometimes of the spleen have been noted in most cases, and some patients also have jaundice and azotemia. Erythrocyte fragility is increased during the crisis but returns to normal when it is overcome. The attacks may occur in the first days of the treatment or when the first dose is given, even though the doses are no larger than those usually prescribed. The anemia can be corrected fairly rapidly by one or two blood transfusions and does not recur. All the children in whom it occurred were given a solution of *p*-aminosalicylic acid, sold in ampuls containing in addition a sodium salt of ascorbic acid in a solution of sucrose with sodium saccharinate and flavoring, each 15 cc. ampul containing 3 gm. of *p*-aminosalicylic acid. This solution is easier to administer to children, especially infants, than other forms of *p*-aminosalicylic acid. Anemia followed ingestion of a single ampul in one case; in another, three-fourths of an ampul, or 2.35 gm. of *p*-aminosalicylic acid, precipitated an attack. The children affected are not intolerant to *p*-aminosalicylic acid; some had previously received it in granular form without ill effects. Efforts to find the cause of this complication have been unsuccessful. The possibility of its occurrence should be kept in mind, and blood transfusions should be given at the first sign that it is impending.

Semana Médica, Buenos Aires

60:333-366 (March 12) 1953. **Partial Index**

*Syndrome of Left Ventricular Overload from Surgical Closure of Patent Ductus Arteriosus. A. Villamil, E. Martínez Zuviría and C. M. Mafia del Castillo.—p. 333.
Fibroma of Ovary. S. L. Sala and N. Santo.—p. 337.
Indications for Surgery in Hyperthyroidism. M. Gallego Tejedor and M. Zaforas Marco.—p. 340.

Left Ventricular Overload After Closure of Patent Ductus Arteriosus.—According to the authors, the electrocardiographic changes observed in the subject of this report have not been previously reported in the literature. They direct attention to the facts that persistence of patency of the ductus results in an increase of the blood volume, the cardiac minute volume, and the work of both ventricles, all of which return to normal after the operation. The electrocardiogram of the majority of these patients is normal before and after the operation. The patient, a woman of 21, developed relatively normally up to the age of 20, when dyspnea and heart palpitation prevented her from working. The electrocardiogram showed a Q wave in the second and third leads and in the V5 lead. The T wave was positive in all leads and the R wave was high in the V1 lead, suggesting increased pressure in the pulmonary artery. The operation was well tolerated. The ductus was short and very wide. The postoperative period was uneventful, and the patient was clinically cured. An electrocardiogram taken 45 days after the operation showed diphasic T waves in the first and second leads and in the left precordial leads. This change lasted for four months after the operation, after which the electrocardiogram became normal. The high R wave in the V lead, which had been observed in the electrocardiogram before the operation, also disappeared together with the abnormal T wave. The authors conclude that overloading of the left ventricle as shown by the abnormalities of the T wave in the electrocardiogram after the operation, could not be related to the newly created conditions of circulation, which were compensated by the diminution of the minute volume after the operation. The operation may have corrected the pulmonary hypertension with consequent control of compensatory hypertrophy of the right ventricle and the development of latent hypertrophy of the left ventricle. Therefore they state that the inversion of T wave after the operation showed overloading that occurred after the relations between the large blood vessels had become normal as a result of the operation.

Ugeskrift for Laeger, Copenhagen

115:317-352 (Feb. 26) 1953. **Partial Index**

*Retrolental Fibroplasia. P. Braendstrup and E. W. Flensborg.—p. 317.
Climate in Incubators During Use: Investigation on Normal Variations in Oxygen Content in Incubator Atmosphere During Routine Use. S. Vendel and G. Haglund.—p. 324.
Iron Treatment of Premature Infants. A. Rothe-Meyer and H. Kreutzfeldt.—p. 331.

Retrolental Fibroplasia.—Retrolental fibroplasia was unknown in Denmark before 1949. During the past two years systematic examinations of premature infants in a Copenhagen children's hospital revealed 24 cases of retrolental fibroplasia, and 7 cases have been reported from the Rigshospital's department for diseases of the eye. Of these 33 infants, 8 are permanently blind and 4 have impaired vision; the changes were transitory in the others. Analysis of the material seems to confirm a relationship between the disease and liberal postnatal oxygen therapy and suggests that the oxygen therapy rather than the degree of prematurity may be the decisive factor. Since fibroplasia has been reported in cases without preceding oxygen therapy and only a minority of the children treated with oxygen develop the disorder, an individual factor is thought to be present. The retrolental fibroplasia was not recognized during continuous oxygen therapy but as a rule shortly after cessation of the treatment, which might support the assumption that the disorder is a relative anoxemic retinopathy. Braendstrup and Flensborg caution against liberal oxygen therapy for premature infants and advise administration of oxygen to premature infants only on strict indication, for as short a time as possible, and with gradual reduction of the oxygen percentage.

Zeitschrift für klinische Medizin, Heidelberg

150:213-312 (No. 3) 1953

Clinical and Physiological Study of Coagulation with New Repository Heparin Preparation. P. Plancherel.—p. 213.
*Symptomatology of Acute Porphyria. H. Dörken.—p. 260.
Reduction Capacity in Diabetes Mellitus, with Particular Consideration of Simultaneous Disease of Liver. G. Stüttgen, H. Pilz and E. Chiesura.—p. 273.
Cytodiagnosis of Bronchial Carcinoma with Aid of Bronchial Aspiration Under Visual Guidance. H. Hengstmann.—p. 283.

Symptoms of Acute Porphyria.—The occurrence of acute porphyria with the classical triad of abdominal pain, massive paralysis and dark urine, is reported in three women between the ages of 33 and 54 and in a 40-year-old man. In one of the women, the electroencephalogram demonstrated clearly the diffuse impairment of the central nervous system; a predominant rhythm of 6 to 8 waves per second was observed in the unipolar and bipolar leads from the frontal and parietal areas. There were occasional groups of slower oscillations (4 to 5 per second) occurring symmetrically over both hemispheres. Observations made on the capillaries of the same patient are reported as noteworthy: the capillaries were constricted; the ratio of the arterial to the venous branch was 1:1; many of the capillaries were empty; the flow was stopped for 10 to 30 seconds; and there were no hemorrhages. The excretion of creatine in the urine was determined on several consecutive days in one patient; high amounts up to 324 mg. daily were observed, but there was a drop during menstruation, for which the term "paradoxical creatinuria" is suggested. Various results of urinalysis as reported in the recent world literature on porphyria are presented, and their significance for the clinical diagnosis is discussed. Hormonal relationships in addition to allergic factors are to be considered essential for the course of the acute porphyria. In one of the author's female patients with severe porphyria, a therapeutic trial was made with a proprietary preparation of testosterone propionate in oily solution (Testoviron) in doses of 10 mg. and later on of 25 mg. daily for four weeks. As a result of this treatment, the pareses subsided, abdominal cramps did not recur, and there was an increase in body weight. The urine became clearer with reduced excretion of porphyrin. It is suggested that the transition of the acute disease with its severe neurological symptoms into the latent stage was considerably favored by this treatment.

Ztschr. f. d. ges. Innere Medizin, Leipzig

8:237-284 (March 15) 1953. **Partial Index**

Clinical Aspects of Collagen Diseases. G. Gottsegen, T. Romoda and S. Pánczél.—p. 237.
Primary Oliguria. E. Platzbecker.—p. 257.
Corticotropin in Schoenlein-Henoch's Purpura. H. H. Hennemann.—p. 260.
Cold Agglutinins in Hepatitis During Childhood. M. A. Frunder.—p. 269.
Differential Diagnostic Considerations in a Case of Severe Bradycardial Atrioventricular Arrhythmia. H. Jordan.—p. 273.
*Death Following Ingestion of 15 Gm. of Isoniazid. F. W. Scheibe.—p. 283.

Death Following Isoniazid.—A youth, aged 19, with pulmonary tuberculosis took 15 gm. of isoniazid all at once while he was intoxicated. Shortly later he lost consciousness and tonic and clonic convulsions developed, which recurred at varying intervals until death ensued in circulatory failure 16 hours later. The patient never regained consciousness. Necropsy revealed, aside from the pulmonary tuberculosis, vascular turgescence of many organs, particularly of the brain and its meninges. The brain was moreover edematous and swollen and showed perivascular blood extravasation. There was lipoidosis of the liver, heart, and kidneys. The concentration of isoniazid in kidney and liver was 8 and 12 times as high as in the brain. Since cerebral side effects from isoniazid are frequent and severe, the central nervous system must be damaged by much smaller doses than are the parenchymatous organs. The usual therapeutic doses never damage these latter organs. The author feels that the alcohol intoxication, by inducing a general hyperemia, increased the absorption of the isoniazid and thus was a contributing factor in the fatality.

BOOK REVIEWS

Surgery in World War II: The Physiologic Effects of Wounds. By Board for Study for Severely Wounded, North African-Mediterranean Theater of Operations. [Prepared by Historical Division, Army Medical Library], Medical Department, United States Army. Office of Surgeon General, Department of Army. Cloth. $3.50. Pp. 376, with illustrations. Superintendent of Documents, Govern. Print. Off., Washington 25, D. C., 1952.

This book deals with the physiological responses of the body to wounds. The material is taken from surgical records of World War II. Since severe surgical shock associated with trauma is not commonly encountered in medical practice during peacetime, detailed study has seldom been possible. Valuable experimental work on shock has been done with animals since World War I, but there has been little opportunity for study of this serious condition in man. At the outset of World War II, the need for whole blood replacement and for resuscitation was poorly understood.

Proper emphasis is placed on the significance of blood volume, infection, uncontrolled hemorrhage, the site of injury, and limitations of analgesic and anesthetic agents. The material presented is quite remarkable in consideration of the fact that a great amount of it was collected in the open field, at times under direct fire; the data were obtained a few minutes after the injuries occurred. Only by such immediate direct contact with human casualties can such practical information be obtained.

The section that deals with "shock kidney," or lower nephron nephrosis, is especially commendable. This is a study of the clinical records of 60 patients on whom necropsies were performed. Thirty-eight had pigment nephropathy demonstrated histologically; this compared with 22 cases in which this lesion was not present. It was noted that the clinical syndrome or renal insufficiency that follows shock is remarkable for the scarcity and mildness of symptoms. The commonest symptom was drowsiness that slowly deepened into stupor; however, even this at times was absent until death. The commonest sign was edema, either pulmonary or peripheral. The laboratory and blood pressure findings provided more useful criteria.

This book is thought-provoking and will stimulate further study in the response of organs to trauma. It is well written and concisely presented. It is highly recommended to those interested in this field of study, and will no doubt remain an excellent source of reference.

Nutrition in India. By Dr. V. N. Patwardhan, Director, Nutrition Research Laboratories, Indian Council of Medical Research, Coonoor, South India. Cloth. Rs. 15-8. Pp 345, with 28 illustrations. Indian Journal of Medical Sciences, Bombay-4; sole distributors: Hind Kitabs Limited, 261-263, Hornby Road, Bombay 1, 1952.

The name of Col. Robert McCarrison is familiar to those who have studied the history of nutrition. As a medical officer of the British Army in India, McCarrison early in this century began his research on goiter in the mountains of the northwest frontier. He later undertook investigations into deficiency diseases, including his well-known work on beriberi. His activities led to the founding of an institution devoted to research in human nutrition at Coonoor in south India, with the support of the Indian Research Fund Association. After 1922, the institution at Coonoor became the Nutrition Research Laboratories. Dr. V. N. Patwardhan, the writer of this treatise, is its present director.

An important result of the studies at Coonoor has been the enlistment of many young scientists for research in nutrition. They now are engaged by medical colleges and other institutions all over India. Since their research reports, unfortunately, have been published mainly in Indian journals, persons in the United States and Europe who are interested in nutrition will welcome this review. The book provides information on the amazing variety of foods grown in India, their composition and digestibility; basal metabolic rates, which generally are low; and details as to the diets of the various regions. Many of the diets are inadequate in animal protein and vitamins. The results of extensive nutrition surveys are given, as well as accounts of anemia and the prevalent deficiency diseases. Several chapters deal with nutrition in public health practice and with the disturbing problem of overpopulation.

Functional Neuroanatomy. By Wendell J. S. Krieg, B.S. in med., Ph.D., Professor of Anatomy, Northwestern University Medical School, Chicago. Second edition. Cloth. $9. Pp. 659, with illustrations. Blakiston Company (division of Doubleday & Company, Inc.), 575 Madison Ave., New York 22, 1953.

This textbook has been revised to include the results of recent research in the anatomy and physiology of the nervous system, particularly of the wider application of the cathode ray oscilloscope to the exploration of central nervous system pathways. The author has kept the addition of textual material to a minimum but has added many new sketches and three-dimensional drawings.

The anatomy of the various portions of the nervous system is presented from the physiological or functional viewpoint, and in most of the chapters there is a brief discussion of the clinical implications. The text is illustrated with photographs, line drawings, and ingenious three-dimensional sketches. A short chapter that serves as a guide to the student in the laboratory study of the brain and spinal cord and an atlas of sections and slice reconstructions are included. References to the literature are not given in the chapters, but there is a short section with suggestions for further study. There is a brief but adequate index. The material is presented in an interesting and easily read style. All these make the book of great value to the medical student and the neurologist.

Problems of Infancy and Childhood: Transactions of the Sixth Conference, March 17 and 18, 1952, New York, N. Y. Edited by Milton J. E. Senn, M.D., Sterling Professor of Pediatrics and Psychiatry, Yale University School of Medicine, New Haven, Conn. Cloth. $2.50. Pp. 160. Sponsored by Josiah Macy, Jr. Foundation, 16 W. 46th St., New York 36, 1953.

This is a stimulating and sophisticated "infant-centered discussion of early (personality) development." The vivid atmosphere of interchange of experiences and thoughts is dramatically preserved in the literary style of the transactions. The chief contributors are Sibylle Escalona and Katherine Wolf, both of the Child Study Center, Yale University, and Ann Stewart of the Child Health Center, University of Washington. The titles of their contributions are, respectively: "Emotional Development in the First Year of Life," "Observation of Individual Tendencies in the First Year of Life," and "Excessive Crying in Infants—A Family Disease." The other discussants are experts in pediatrics, psychiatry, public health, obstetrics, and experimental clinical science.

The substance of the report is embodied in two to four detailed case studies that each of the chief speakers presented for discussion. Consistent attempts are made to separate descriptive accounts of observed data, "phenomenology by inference," from theoretical conceptions and hypotheses. The method of observation is a sort of dynamic field psychology of the infant's "total situation" or "life space" as it is revealed during repeated visits to the study center. In Dr. Stewart's paper on the colicky baby somatic investigations of various kinds are included, and valuable hints are given to the physician as to how to manage such infants. Attempts are made to predict development and to anticipate neurotic trends.

The case studies are preceded by a fascinating 50-page treatise by Dr. Escalona on what may be termed the world of the infant as seen from within. The method here is purely

---

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

interpretative, and the author often stresses the speculative and imaginative character of her thoughts and "fantasies." These she presents under two headings: "Space, Time, and Reality" and "Social Interaction, Contagion and Communication." The early budding of a dimly sensed "self" that is somehow discerned from a world of "non-self" is exposed in a masterly fashion. This "outer world," for the older infant, remains "idiomatic," animated, and personal, when compared with the objective, realistic, nonself, and public world of the adult. As the infant's world emerges, he experiences the feeling of the uncanny against the background of the familiar, and the birth of conscience is part of his interpersonal primordia. Contacts with young babies are mediated by "contagion," which seems similar to empathy, resonance, or tact. "Contagion" is the archtype of "communication," which the infant later establishes in a more conscious and purposeful manner. Such thoughts ultimately border on philosophical discussions. As Dr. Escalona is well aware, explorations of personal self, human life, existence, world, conscience, moods, and empathy (including "contagion") have been leading themes of philosophers since the 1920's.

L'œsophage en cardiologie: Etude radiologique de l'œsophage dans les cardiopathies congénitales et acquises. Par Marcel Segers et Marcel Brombart. Préface du P^{r} Ch. Laubry. Acta cardiologica, supplementum V. Paper. Pp. 202, with 135 illustrations. Les editions "Acta medica belgica," 64 rue de la Concorde, Brussels, 1952.

In this monograph the authors have reviewed and summarized their systematic studies concerning the roentgenologic aspects of the normal and abnormal relationships of the esophagus to the heart. After a discussion of normal conditions and their physiological variations, the various pathological patterns are systematically described and are illustrated by roentgenograms of excellent technical quality and, in many instances, by instructive diagrams. Particular consideration is given to the types of abnormal esophagrams encountered in mitral disease, in acquired aortic disease, and in congenital anomalies of the aortic arch. The differential diagnosis of these conditions is discussed in the legends to the illustrations as well as in the clear and concisely written text. An extensive bibliography is included. Those who are interested in clinical and, particularly, roentgenologic diagnosis of cardiovascular disease will benefit from reading this booklet.

Pathology of the Heart. Edited by S. E. Gould, M.D., D.Sc., Clinical Professor of Pathology, Wayne University College of Medicine, Detroit. Collaborators: Archie H. Baggenstoss, Associate Professor of Pathologic Anatomy, Graduate School, University of Minnesota, Rochester, et al. Cloth. $25. Pp. 1023, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1953.

This is the first thorough English presentation in book form of pathology of the heart. Dr. Gould has assembled as his collaborators outstanding investigators in the particular subjects assigned to them. By careful editing, duplication of material has been kept at a minimum. Pathology is considered in its broadest sense, so that the book is far removed from a detailed description of morbid anatomy. The relationship of structural changes to abnormal physiology and to the clinical picture is emphasized. A section on normal and abnormal cardiac function was written by Harold D. Green, a cardiac physiologist. The book concludes with a chapter entitled "Clinicopathologic Correlations," written by a clinician, Gordon B. Myers. Congenital malformations are given adequate consideration with regard to their clinical recognition and possible surgical treatment. The etiological approach is indicated by the titles to the various sections, e. g., rheumatic disease, degenerative diseases, nonrheumatic inflammatory diseases, parasitic diseases, injuries, and neoplasms. The appendix contains some useful information on the proper technique in gross examination of the heart at autopsy. Each section is well illustrated. The bibliography at the end of each section is arranged chronologically instead of alphabetically. The text is well written and easy to read. The book should be of considerable value to the cardiologist, the medical student, and the general practitioner.

Treatment of Respiratory Emergencies Including Bulbar Poliomyelitis. By Thomas C. Galloway, M.D., Attending Otolaryngologist, Evanston Hospital, Evanston. Publication number 168, American lecture series, monograph in American Lectures in Otolaryngology, Audiology and Broncho-Esophagology. Edited by Norton Canfield, M.D., Associate Clinical Professor of Otolaryngology, Yale University School of Medicine, New Haven, Conn. Cloth. $3. Pp. 94, with 5 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1953.

In this monograph the author attempts by reference to respiratory disorders such as bronchiectasis, laryngotracheobronchitis, and bulbar poliomyelitis to emphasize the need for early recognition of the deleterious effects of respiratory obstruction and anoxia and the need for relief of obstruction before permanent defects result. He outlines briefly the mechanics of obstruction, the pathophysiology of anoxia, factors incident to the care of patients with poliomyelitis, and the proper use of tracheotomy.

One would expect from the title of the monograph to find a discussion of all factors relating to respiratory emergencies, such as care of the upper airway, measures for securing and maintaining ventilation, and the use of endotracheal airways. The emphasis, however, is on tracheotomy, which most physicians will find is indicated in only a small percentage of respiratory emergencies. The section dealing with tracheotomy is complete in description of indications and technique; however, it might be improved by a more detailed description of size and shape of tracheotomy tubes and a discussion of the advantages and disadvantages of high and low tracheotomy.

The "byways" mentioned by the author in the introduction seem to be unnecessary. If the monograph is concerned primarily with treatment of respiratory emergencies, there seems to be little indication for a discussion of the pathogenesis of laryngotracheobronchitis, bronchiectasis or atelectasis, and electrolyte and nutritional balance.

The monograph is beautifully prepared, and the type facilitates reading. Illustrations are few but excellent. The author presents his material in an informal manner with many references to personal experiences; he is especially well qualified to present observations on tracheotomy. The reader may be disappointed if he expects a comprehensive discussion of problems relating to respiratory emergencies. He will, however, find a thorough discussion of the indications for tracheotomy and the technique for its use. The general practitioner will find the monograph useful for meeting the relatively infrequent respiratory emergency requiring tracheotomy.

Clinical Diagnosis by Laboratory Methods: A Working Manual of Clinical Pathology. By James Campbell Todd, Ph.B., M.D., Arthur Hawley Sanford, A.M., M.D., and Benjamin B. Wells, M.D., Ph.D., Professor of Medicine, University of Arkansas, Little Rock. Twelfth edition. Cloth. $8.50. Pp. 998, with 946 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1953.

This standard textbook and reference on clinical laboratory procedures has been brought up-to-date without any major alterations in the content and chapter subdivisions from the preceding edition. The general excellence of previous editions is maintained. A few changes are found in the chapter on the urine, and some new material has been added to the chapter on blood. The chapter on bacteriological methods has been rearranged to conform to nomenclature and classification found in the sixth edition of Bergey's "Manual of Determinative Bacteriology." The chapter on serologic tests for syphilis also has been revised to conform to the techniques published by the U. S. Public Health Service. Technicians, students, and physicians will appreciate the effort of the authors to provide recognized and uniform methods for the clinical laboratory. As in prior editions, the contents are restricted to established procedures, a feature that makes the book particularly useful as a standard reference. The appendix of data on various standard solutions, tables of normal values, and an outline of laboratory findings in important diseases have been retained. The subject index also indicates the location of illustrations by means of italics. The typography is excellent and apparently free of errors.

Lehrbuch der Krankheiten des Herzens und der Blutstrombahn. Von Prof. Dr. Fritz Lange. Cloth. 71 marks. Pp. 631, with 192 illustrations. Ferdinand Enke, Hasenbergsteige 3, (14a) Stuttgart-W, 1953.

This new German textbook on cardiovascular diseases is a revival of Romberg's book, for many years considered the leading European monograph on the subject. It is printed on good paper and illustrated by many charts, diagrams, roentgenograms, and electrocardiograms, all of excellent technical quality. The text is easily read, is well organized, and contains an ample bibliography. The initial chapter deals with general principles and the anatomy and physiology of the heart and is followed by a section on physical and laboratory diagnosis. There is a systematic and complete description of acquired and congenital heart diseases, including therapy, and there is a similar discussion of diseases of the peripheral vessels. A few confusing mistakes that need correction are: mounting and labelling in figure 127; misinterpretations of electrocardiograms in figure 91 b, page 122; inadequate legends to figures 135 and 136; and conflicting statements concerning the effect of digitalis on coronary flow on pages 312 and 317.

From the viewpoint of the American reader, certain concepts and general statements may appear unsatisfactory and obsolete. For example, no emphasis is given to the central role of disturbed electrolyte balance in the pathogenesis of congestive failure, and the low salt syndrome in the course of mercurial diuresis is not mentioned. The concept of collagen diseases is ignored, and the respective entities are dealt with mainly in the chapter on peripheral vascular diseases. No mention is made of the principal difference in the treatment of paroxysmal and chronic forms of auricular tachycardia. Procaine amide (Pronestyl) hydrochloride is not mentioned in the recommended therapy of ventricular tachycardia with intravenous morphine. The author's viewpoints on spa therapy of heart disease and the use of leeches are also obsolete. In dealing with the pathogenesis of essential hypertension, the author gives preference to the concepts of Volhard and Julius Bauer.

In general, however, the present author, one of Romberg's disciples, succeeded well in reviewing the vast literature, accumulated since 1925, and in correlating advances in clinical cardiology with the basic ideas of the traditional German approach to clinical diagnosis and teaching.

Fanconi and Wallgren's Textbook of Pædiatrics. Edited by W. R. F. Collis, M.A., M.D., F.R.C.P., Physician, National Children's Hospital, Dublin. Translator and co-editor: E. Kawerau, M.B., M.Sc., A.R.I.C. [Originally published under title Lehrbuch der Pädiatrie by Benno Schwabe & Co., Basel.] Cloth. $19.50. Pp. 1104, with 441 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1952.

This is an English edition of the original German textbook, "Lehrbuch Der Pediatrie." The book contains contributions from 19 well-known European pediatricians who, as far as possible, confine themselves to their own particular specialties and express their own ideas.

There are 33 chapters, including a chapter on tropical conditions in childhood and a synopsis of medical treatment. There is considerable revision of the German text, bringing up-to-date the section on antibiotics and including fresh material in many chapters.

While the book is comprehensive and detailed, it is somewhat deficient in discussion of the newer remedies, particularly the broad spectrum antibiotic drugs. In treatment of Hemophilus influenzae meningitis, for example, only the sulfonamides and streptomycin are recommended. While most therapy seems similar to that practiced in the United States, measures such as mustard poultices in the treatment of bronchiolitis are obsolete. Another serious deficiency is the lack of adequate and up-to-date references. Despite these drawbacks, the book contains considerable valuable information and excellent black and white and colored photographs. The type, paper, and binding are excellent; however, except for the illustrations, the book scarcely measures up to American textbooks.

Roentgen, Radium and Radioisotope Therapy. By A. J. Delario, M.D., Head of Therapeutic Radiology, St. Joseph Hospital, Paterson, N. J. Cloth. $7.50. Pp. 371, with 65 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1953.

The title of this book is somewhat misleading in that there is minimal coverage of therapeutic aspects, the greater portion of the volume being devoted to the physical foundations of ionizing radiations. Concerning roentgen therapy, there is merely a cataloging of diseases amenable to treatment, without reference to technique of treatment planning or any of the other factors involved. It is also unfortunate that the author devotes a disproportionate amount of discussion to the erythema dose, since the tumor dose is the accepted unit of choice. There is little reason to expect that this volume will supersede or supplement standard works on roentgen therapy.

Radium therapy is covered in one chapter, the material consisting of the usual distribution rules, charts, and tables necessary for dosage calculations. Since the subject has been covered in more detail in well-known standard works, the present contribution is not significant. The chapters on radioactive isotopes are up-to-date and contain much useful information in condensed form. The presentation should prove useful as a general introduction for the interested student.

There are no sound physical foundations for the theory of the nature of roentgen rays as promulgated in this work. This theory postulates that the rays are propagated similarly to sound waves and that the neutrinos of the atmosphere vibrate and conduct the electromagnetic waves. Similar liberties taken with basic physical laws are found in isolated examples throughout the volume. There are, however, many useful charts and tables, compiled from many sources and covering the entire range of subjects. These may be used for reference by the student of radiation therapy. In addition, recent developments, such as radiation from atomic fusion and fission, are adequately treated.

Speech and Hearing in Communication. By Harvey Fletcher, Ph.D. Bell Telephone laboratories series. [Based on "Speech and Hearing," 1929.] Cloth. $9.75. Pp. 461, with 246 illustrations. D. Van Nostrand Company, Inc., 250 Fourth Ave., New York 3; 25 Hollinger Rd., Toronto; Macmillan & Company, Ltd., 10 St. Martin's St., Leicester Sq., London, W.C.2, 1953.

Physics of sound, as applied to speech and hearing, was advanced considerably by the publication of the first edition of "Speech and Hearing" in 1929. Written by a physicist who had devoted 15 years to research in the transmission of sound at the Bell Telephone Company laboratories, the book proved to be an authoritative source of information on acoustics and one on which much of the later research in communications was based. This new book of the same name, based on the author's earlier work, contains the most recent information on acoustics. The author discusses the physics of the speaking and hearing mechanisms of the human being. The fundamentals of acoustics and methods of calculating articulation scores are also presented. A new method for the calculation of perception of speech and a method for computing per cent hearing loss are proposed. The book deals extensively with the mathematical approach to acoustical problems. Although the technical discussions can be understood by the physicist, engineer, or mathematician, the general practitioner, unless he is well versed in mathematics, may find the book difficult reading. On the other hand, physicians who are interested in hearing and speech will find the book extremely valuable.

Die Konservierung von Knochengewebe für Transplantationen. Von Hans Roth, Oberarzt der chirurgischen Universitätsklinik Basel. Cloth. $11.60. Pp. 222, with 147 illustrations. Springer-Verlag, Mölkerbastei 5, Vienna 1, 1952.

This attractive, well-written, and richly illustrated book reviews past experience on bone transplantation and contributes new data. The author believes that at present the best method for preservation of donor material is at -12 to -20 C under liquid petrolatum. The bibliography is comprehensive, representative, and up-to-date, and there are author and subject indexes. The book is recommended to orthopedic surgeons and to all others concerned with problems of tissue transplantation.

The Control of Communicable Diseases. By Hugh Paul, M.D., D.P.H., Medical Officer of Health, Smethwick County Borough, Staffordshire, England. With foreword by G. S. Wilson, M.D., F.R.C.P., D.P.H., Director of Public Health Laboratory Service. Cloth. 55/-. Pp. 526, with 30 illustrations. Harvey & Blythe, Ltd., 212 Shaftesbury Ave., London, W.C.2, 1952.

This volume is designed, according to the author, for the needs of physicians, whose "importance in the realm of the control of communicable diseases can scarcely be exaggerated." The author has selected the infections of major concern to British physicians and has attempted to present a critical appraisal of their epidemiology and control. Only minor attention has been given to infections not endemic in the British Isles. The volume is rich in historical data, which are so commonly omitted from books of this type. Special attention has been given to the collection of statistical information on the incidence of these diseases and to discussion of the administrative procedures currently required in Great Britain. It is thus a valuable compendium of information that is otherwise widely scattered.

The critical student of epidemiology will, however, question certain parts of the volume. Without denying the public health importance of cancer, he may question discussion of it in a book on communicable diseases. The author makes sharp distinctions between scarlet fever and streptococcic sore throat and virtually neglects the significance of type differentiation in the epidemiology of streptococcic infections. Dust is emphasized in the spread of such infections, and little attention is given to the significance of direct contact with unrecognized ambulatory cases. The author neglects the carrier as a source of food contamination in the spread of typhoid and emphasizes water contamination. One can hardly agree that "as a general rule in typhoid fever one should look for a carrier who has contaminated water, and in paratyphoid, for one who has contaminated food," or that in milk-borne outbreaks the commonest method of contamination "is probably the use of infected water for washing the milk utensils, or for cooling them." The statement that the room that has been occupied by the typhoid patient "should be sprayed with either a carbolic or hypochlorite disinfectant," is surprising. If these statements are correct, the epidemiology of typhoid and the requisite control practices in England differ strikingly from those in the United States. The critical reader will find many other statements to which he may take exception. These many controversial aspects do not destroy the value of the book for the advanced student or the critical reader but limit its usefulness as a text or as a general reference volume.

Diseases of the Heart and Arteries: Anatomical and Functional Disturbances of the Circulation, Treatment. By George R. Herrmann, M.S., M.D., Ph.D., Professor of Medicine, University of Texas, Galveston. Fourth edition. Cloth. $12.50. Pp. 652, with 219 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1952.

Through successive editions, this book has grown from a small handbook designed for the medical undergraduate and the busy physician to a massive textbook. This is somewhat unfortunate, because there are many good textbooks on diseases of the heart but few concise manuals on the subject. Dr. Herrmann, who is an authority on cardiovascular disease, does a competent job, but his problem as to selection of material is evident. Such great strides are being made in this field that even such a large book can deal only briefly with many important aspects of cardiovascular disease. Omission of the section on peripheral vascular disease and the section on military cardiovascular examinations would not in any way detract from the value of the book and would save considerable space that could be used for other important material on heart disease. For instance, the recent important advances in cardiac surgery should be described in detail, and a more complete discussion of the mechanism of heart failure would also be desirable. In general, the book represents a comprehensive survey of present knowledge on cardiovascular diseases and is, therefore, a good reference book for the practicing physician. Many illustrations, charts, and figures accompany the clearly written text.

Modern Treatment: A Guide for General Practice. By fifty-three authors. Edited by Austin Smith, M.D., Editor of Journal of American Medical Association, and Paul L. Wermer, M.D., Secretary, Committee on Research, American Medical Association. Cloth. $20. Pp. 1146, with 13 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1953.

Books on therapeutics have come to take two forms; either the small manual for quick reference and handy carrying or the large and comprehensive volume for more serious and protracted study. This book is a highly competent example of the latter type. It contains, in detail, both the background and the practical application of all ordinary, nonsurgical therapy.

The book is introduced by a general chapter on the patient-physician relationship, written by the editors. This is a surprisingly instructive consideration of a number of topics not ordinarily discussed together. Of particular interest are the sections on ethics and legal restrictions on drugs and other treatments and on clinical research and the evaluation of new drugs. The next four chapters consider general factors in the treatment of disease; namely, pharmacological principles, immunology, chemotherapeutic agents, and general principles in infections. The major portion of the book is a consideration of individual diseases, beginning with bacterial infections and ending with poisonings. Unlike most large books on therapy, this one includes interpolated chapters on relevant aspects of general problems such as pain mechanisms and the fundamental explanation of shock. Medical readers at every level may be assured of interesting reading and reliable answers to their therapeutic problems.

The book is handsome, though heavy, and the text is superbly designed and printed. The double columns facilitate reading. Some readers will be bothered by the paucity of references, but, since the authors are authorities in their fields, this may be largely overlooked. The prevalent use of trade names of drugs may also be criticized. Altogether, the book is a modern classic, and all concerned in the extensive project are to be congratulated.

The Essentials of Medical Diagnosis: A Manual for Students and Practitioners. By Rt. Hon. Lord Horder, G.C.V.O., M.D., F.R.C.P., Extra Physician to H. M. the Queen, and A. E. Gow, M.D., F.R.C.P., Consulting Physician, St. Bartholomew's Hospital. Second edition revised with assistance of Ronald Bodley Scott, M.A., D.M., F.R.C.P., Physician to H. M. Household. Cloth. $6. Pp. 462, with 50 illustrations. (William Wood book), Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1953.

The authors of this book need no introduction to members of the medical profession. The senior author is known not only for his medical ability but for his determination to preserve freedom in medical practice. It is not surprising then that these writers should prepare a book that wastes no words and yet is easily read and understood. It is offered as a manual for students and practitioners and certainly will be recommended by those who become familiar with it. As an office reminder or bedside companion, this book will carry the reader from one medical problem to another with a degree of interest normally reserved for less seriously written books.

Bodily Physiology in Mental and Emotional Disorders. By Mark D. Altschule, M.D., Assistant Professor of Medicine, Harvard Medical School, Boston. Cloth. $5.75. Pp. 228. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1953.

This book is interesting because of the author's analysis of the data and ideas found in an already overwhelming literature. Each bodily system is discussed separately and thoroughly. There are 251 references on the subject of blood alone, with corresponding numbers in other chapters. The author maintains that the undisciplined manner in which the "jungle of mental disorder" has been explored in the past is the reason for the present confusion. Psychiatry, he believes, must get beyond its "exclusive preoccupation with superficially acceptable conclusions." This book is well written, indexed, and documented.

Clinical Neurology. By Frank A. Elliott, M.B., Ch.B., F.R.C.P., Assistant Physician to Charing Cross Hospital, London, Brodie Hughes, Ch.M., F.R.C.S., Professor of Neurosurgery, University of Birmingham, Birmingham, England, and J. W. Aldren Turner, M.A., D.M., F.R.C.P., Neurologist to Saint Bartholomew's Hospital, London. Edited by Frank A. Elliott. Cloth. $10. Pp. 751, with 8 plates. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1953.

This English textbook by two competent neurologists and a neurosurgeon is designed for postgraduate students of neurology. Since it is not intended for the beginning student or the senior practitioner, the book does not contain descriptions of rare disease and controversial methods of treatment. The neurosurgeon has written an excellent section on tumors and injuries. The style is admirable, the contents are informative and adequate, and the whole book is an excellent treatise compiled by authors of wide experience. There is a full, skillfully arranged index, and the format of the book is particularly pleasing. There are references to the most important literature through 1950. American readers may not be familiar with such terms as "Both or Bragg-Paul respirator," but this is a minor point. The book in general is sound and might well find a place in the United States as a textbook for postgraduate study.

A Short Practice of Surgery. By Hamilton Bailey, F.R.C.S., F.A.C.S., F.I.C.S., Senior Surgeon, St. Vincent's Clinic and Italian Hospital, London, and R. J. McNeill Love, M.S., F.R.C.S., F.A.C.S., Surgeon, Royal Northern, Mildmay Mission, and Metropolitan Hospitals, London. Ninth edition. Cloth. $12.50. Pp. 1254, with 1234 illustrations (pathological illustrations by L. C. D. Hermitte, M.B., Ch.B., Pathologist, Royal Infirmary, Sheffield). Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; [H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C.1], 1953.

The first edition of this book was published more than 20 years ago. Time alone does not account for its popularity; the way the book is written, the illustrations, and the subjects encompassed make this book welcome to many. It is crammed with a wealth of material and is presented so that everyone can understand it. The book is well-illustrated with colored and black and white figures to a surprising degree for such a comparatively small volume.

How to Prepare for Marriage. By John Douglas, M.D., and Elizabeth Hardy, R.N. Cloth. $2.50. Pp. 135, with illustrations. Pageant Press, 130 W. 42nd St., New York 36, 1952.

Excellent premarital information and advice are contained in this small volume, but there is a general consideration of douching that may not find favor with all physicians. The discussion about "cleansing" douches should be qualified with the recommendation that before such procedures are instituted a physician should be consulted, as is mentioned in the introduction to the discussion of douches in treatment of disease. A chapter containing advice for men is especially well done, as is the one on solution of problems that are likely to develop after the honeymoon. There are concise but adequate chapters on the male and female genitalia. An epilogue suggests that readers who have problems not discussed in the book send them to the authors; again, consultation with a local physician should have been recommended.

Bedside Diagnosis. By Charles Seward, M.D., F.R.C.P., Honorary Physician, Royal Devon and Exeter Hospital, Exeter, Devonshire, England. With foreword by Sir Henry Cohen, M.D., F.R.C.P., Professor of Medicine, University of Liverpool, Liverpool, England. Second edition. Cloth. $3.50. Pp. 380, with illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; E. & S. Livingstone, Ltd., 16 and 17 Teviot Place, Edinburgh 1, 1952.

This book, which was begun less than 10 years ago in India, richly deserves the foreword by England's renowned Sir Henry Cohen. It is brief but is sufficiently detailed so as to make the passages clear to the readers; it is written simply and yet not insultingly so. This is the type of book that the student will welcome and the physician will use through the years of practice. Unfortunately, there are no pictures, as are often found in other manuals of this type, but this does not detract from the value of the book. The author might well consider illustration of a future edition.

Practical Blood Grouping Methods: A Manual of Immunohematology. By Robert L. Wall, M.D. Publication number 122, American Lecture Series, monograph in Bannerstone division of American Lectures in Hematology. Edited by Russell L. Haden, M.D. Cloth. $5. Pp. 175. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1952.

According to the paper cover of this volume, the book contains "the latest information on all aspects of immunohematology." Anyone familiar with the latest developments in blood grouping knows that it is hardly possible to cover all aspects of the subject in 150 small pages. As a result, the treatment is superficial and hardly more detailed than that found in some of the better texts on clinical pathology. The book has very few tables and no figures. The author's handling of some subjects is far from authoritative. The presentation is not profound, as shown by the description of the antiglobulin test, the very brief chapter on recent advances, and the inadequate discussion of Rh nomenclature. The book is not recommended for those who wish detailed information on the subject.

Advances in Biological and Medical Physics. Volume III. Edited by John H. Lawrence and C. A. Tobias. Cloth. $8. Pp. 368. Academic Press, Inc., 125 E. 23rd St., New York 10, 1953.

This volume contains seven chapters, two of which deal with radioactive isotopes, two with molecular biophysics, one with ultrasound, and two with new developments in microscopy. It is lucidly written, liberally illustrated, and is provided with subject and author indexes and a bibliography. The book cites so many examples of the magnificent achievements of modern physics that it is almost discouraging to a medical reader. Baffled daily by unsolved problems like bursitis and lymphedema, one wonders at the apparent ease with which the physicist develops scanning x-ray microscopes or obtains color-translated ultraviolet photomicrographs. The physicist has a rich store of well-demonstrated facts compared with the conflicting data of physiology, and his results seem more permanent than the physician's temporary victories over disease. This book is, however, an inspiring presentation of the research that is being done for eventual use in the relief of suffering.

Women Are My Problem: The Autobiography of an Obstetrician and Gynecologist. By J. L. Bubis, M.D., F.A.C.S., Consultant in Obstetrics and Gynecology, Mt. Sinai Hospital, Cleveland. Cloth. $3. Pp. 223, with illustrations. Comet Press Books, 11 West 42nd St., New York 36, 1953.

The first part of this book is devoted to the life history of the author's family. It is human, interesting, and a tribute to the author's parents, who prepared him for his future and gave him his ideals. The latter part of the book deals chiefly with Bubis' hard struggle to have obstetricians and gynecologists accept his ideas about immediate postpartum repair of lacerations. R. S. Kline and Bubis coined the term puerperal gynecology for this type of surgery, which the medical profession has been slow to accept. Bubis wrote a book on the subject, and only about half of the first edition of a thousand copies was sold; however, he has the satisfaction of having a recent chairman of the Section of Obstetrics and Gynecology of the American Medical Association devote his address to puerperal gynecology. The book is ably written with sincerity and in places with pugnacity. Since it is for the laity, most of the case reports could have been omitted.

Symptoms and Signs in Clinical Medicine: An Introduction to Medical Diagnosis. By E. Noble Chamberlain, M.D., M.Sc., F.R.C.P., Senior Physician, Royal Southern Hospital, Liverpool. Fifth edition. Cloth. $8. Pp. 480, with 354 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; John Wright & Sons, Ltd., 42-44, Triangle West, Bristol 8, England, 1952.

This excellent book, which is intended to be an introduction to medical diagnosis, was first published in 1936. Its success is evident from the fact that a fifth edition was issued in 1952. Simply written and excellently illustrated, it provides in compact form a wealth of material for the student and practitioner. It is the sort of book the physician likes to have readily available by his desk and at his bedside.

QUERIES AND MINOR NOTES

SAFETY OF MILK PRODUCTS IN EUROPE

To the Editor:—*Many persons who are going to Europe for vacations have asked about the safety of eating milk products in the European countries. While it is possible to ask whether the milk has been pasteurized, it is not always possible to determine whether pasteurized milk has been used in ice cream and the various cheeses. Is the ice cream available in Europe made of pasteurized milk? Is there any hazard in eating cheese made of raw milk?*

M.D., Texas.

Answer.—In this country, ice cream is prepared by the mixing together of the various ingredients, after which the mixture is pasteurized and homogenized. Information is not available as to whether the ice cream mixture in all foreign countries is subjected to pasteurization. In England, it is given essentially the same treatment as it is in this country. Unless it is definitely known that the ice cream mix is pasteurized and subsequently processed in a sanitary manner, it would probably be well to forego eating it while in Europe. Cheese may be made from either pasteurized or raw milk. If made from raw milk, the United States Food and Drug Administration stipulates a minimum aging period under conditions of controlled humidity and temperature. This is usually at least 60 days. Unless cheese is known to have been made from pasteurized milk or to have been properly aged, it would be unwise to use it.

MICROCEPHALY AND HEREDITY

To the Editor:—*A patient's brother-in-law has been married twice and with each wife has had a son and a daughter. Both girls were microcephalic. Their physician states that this is an hereditary affair and that under no circumstances should any males of this family have children. Although my patient's husband, one of the brothers, has fathered three boys and one girl, all normal, she is concerned that her male children may transmit the microcephalic characteristic.*

William R. Galeota, M.D., Kerkonkson, N. Y.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—There seems to be a misconception of the type of heredity involved. Were the characteristic of microcephaly sex-linked, it would usually be expressed in males and transmitted by females, just the reverse of the situation described above. The extensive literature indicates that microcephaly depends, for its expression, on the presence of the double dose of a recessive gene, not sex-linked. While the frequency of true microcephaly is only about one in 50,000 births, persons carrying the single dose of the concealed recessive gene are relatively numerous, almost one in every 100 persons. It is a remarkable, though entirely possible, coincidence that both wives of the patient's brother-in-law carried this particular recessive characteristic.

There is no reason why the normal members of this family should not have children. It has been shown that every person carries one or more deleterious recessives in the concealed condition and is, therefore, in as dangerous a position as the members of the above-mentioned family.

Answer.—Microcephaly is relatively infrequent. Few studies of significant scope, dealing with the familial frequency of this condition, are on record. As a result, little is known regarding its mode of hereditary transmission. There is evidence to indicate that microcephaly is due to a single recessive gene, but evidence that it is a sex-linked condition is insufficient. The chance that any physical abnormality will recur in a family depends on a number of factors. These include the frequency of the condition in the population, the extent to which persons in a family, who do not exhibit the trait, may be carriers of the gene for the trait, the closeness of the relationship between the member of the family having the condition and other members of the family, and whether a member of the family in which the trait has appeared is a carrier and happens to marry another carrier.

In view of our lack of knowledge regarding the above factors in the general population and in the family in question, no definite statement can be made with respect to the chance that microcephaly will reappear in the family in question. On the basis of present knowledge, there would seem to be very little chance that the patient's sons or daughter would be likely to have a child exhibiting microcephaly.

HYPOTHYROIDISM

To the Editor:—*I am treating a patient, aged 24, for a mild degree of hypothyroidism. She is comfortable when receiving 2 to 3 grains (0.13 to 0.19 gm.) of thyroid daily. She asks whether she will ever be able to stop thyroid medication, without which her basal metabolic rate is persistently about -20%. Her protein bound iodine level is 2 mcg. per 100 cc., and her blood cholesterol level is over 300 mg. per 100 cc. She does not have the appearance of a patient with classical myxedema; however, when she is without thyroid medication she is less alert, fatigues easily, and has a feeling of not being well. Placebo substitution for the thyroid extract does not control her symptoms. Can she expect spontaneous remission after a given period of treatment? Does the situation parallel that in spontaneous remission in other endocrinopathies, such as diabetes mellitus? Does prolonged administration of thyroid suppress any function of the pituitary in such a patient?*

M.D., New Jersey.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—A spontaneous remission of some degree in this patient is possible, not in relation to the length of treatment but to the menopause, when there is sometimes an increase in thyroid activity; however, this is the exception rather than the rule. Spontaneous remission in classical myxedema is rare. The situation does parallel that relating to spontaneous remission in other endocrinopathies. Administration of thyroid suppresses the secretion of thyrotropic hormone by the anterior pituitary gland, but, after cessation of even prolonged administration, the anterior pituitary gradually escapes from the inhibition.

Answer.—The criteria for the diagnosis of hypothyroidism in this patient are largely subjective. The only objective findings are slight depression of the basal metabolic rate to a level of -20% and an increase in the serum cholesterol level to 300 mg. per 100 cc. It is probable that hypothyroidism, if present, is secondary to hypopituitarism, and a careful search should be made for other evidence of pituitary insufficiency. If hypopituitarism is present, the correction of the hypothyroidism is only one phase of the treatment and will only partially correct the patient's disturbance. Hypothyroidism rarely disappears spontaneously, regardless of whether it is primary or secondary in type. Prolonged administration of desiccated thyroid may cause some suppression of pituitary function if it is given in excess. When given in quantities sufficient to correct hypothyroidism, it does not suppress pituitary function.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

PURPURA SIMPLEX

To the Editor:—*What is the cause of a tendency to bruise readily, in the absence of overt disease? This is especially noticeable in the proximal extremities and worse when the muscles are held tensely.*

Edward Dengrove, M.D., Asbury Park, N. J.

Answer.—Purpura simplex is the term applied frequently to the disease complex to which the symptom described in the query belongs. It includes single or multiple mild attacks of purpura without a clear cause, although allergic and/or hormonal factors are vaguely blamed. One condition belonging to the syndrome is referred to as simple, easy bruising. It affects women primarily, beginning sometimes in early childhood and persisting throughout life. The skin of these patients is usually fair, thin, and sensitive to solar and chemical irritants. The lesions are located primarily on the arms and legs. Vulnerability of capillary endothelium to physical or chemical trauma is probably a responsible factor. Pituitary and thyroid dysfunction are also suspected. There is a tendency to menstrual disorders and to a low basal metabolic rate. Laboratory tests applicable to the study of hemorrhagic disorders are usually normal. Improvement has been reported following administration of thyroid.

The fact that "holding muscles tensely" aggravates the bruising tendency places this patient's condition in a group of conditions known as mechanical purpura. This is seen in otherwise normal persons in an area of the body subjected to a sudden increase in venous pressure. The hemorrhage is due to mechanical rupture of the capillaries. Here, also, the laboratory tests are normal. A third condition in which hemorrhages occur in the extremities, primarily in women, frequently appearing for the first time at menopause, has been described as hereditary familial purpura simplex. In this condition, the test for capillary fragility may give positive results. A hereditary weakness of capillaries is held responsible. There is no specific therapy available for these conditions, except for the previously mentioned use of thyroid in purpura simplex. If operation is necessary, the bruising tendency is not a contraindication as a possible cause of hemorrhage, because these patients have no abnormal bleeding tendency. It is important to recognize the true nature of the condition and not to confuse it with other more serious types of purpura. It is most important to exclude thrombocytopenic purpura. A platelet count will help to establish the diagnosis.

DRUG THERAPY OF PEPTIC ULCER

To the Editor:—*In treatment of a duodenal ulcer is there any contraindication to the use of both methantheline (Banthine) and adiphenine (Trasentine) with phenobarbital? A patient has had a duodenal ulcer for a year, with little if any roentgenographic change. He has had no ulcer discomfort since he has been taking methantheline, but the ulcer fails to heal. Could this be due to the fact that he has also been receiving adiphenine with phenobarbital because of pylorospasm? Are the two drugs in any way antagonistic to each other?*

M.D., California

Answer.—There is no contraindication to the combined use of methantheline and adiphenine with phenobarbital. Methantheline, atropine, and phenobarbital are commonly used in the treatment of peptic ulcer. Lack of healing is most likely due to the fact that sufficiently large doses of these drugs are not used and ulcer management of the rigid type has not been carried out. The average peptic ulcer of the duodenum should heal within two to four months, unless a patient has the complications of ulcer or the ulcer has an arteriosclerotic base and is large enough to prevent healing. If the ulcer does not heal within two to four months with rigid management and the patient shows the crater on repeated roentgenologic examination, he should be treated surgically rather than continued on conservative medical management. When a patient has a deformity of the duodenal bulb, it does not necessarily indicate that there is activity in the ulcer bed. A spasm may be relieved when the ulcer is healed, but the superficial scarring and irregularity of the bulb may persist long after the ulcer is healed. Only by compression techniques can it be determined whether one is dealing with an active peptic ulcer.

CONVULSION IN INFANT FOLLOWING INJECTION OF VACCINE

To the Editor:—*About 16 hours after an 8-month-old infant received his fourth monthly 0.5 cc. injection of combined diphtheria-tetanus toxoids (alum-precipitated) and pertussis vaccine, he suddenly had a convulsion, with jerky quick movements of all four extremities repeated rapidly for two to three minutes. The child then became limp, pale, and unresponsive and was in a state of collapse. His eyes did not react to light, and at times his eyeballs wandered meaninglessly. His respirations were slow and shallow and his lips slightly cyanotic. I administered 0.1 cc. of aqueous epinephrine in 1:1,000 dilution intramuscularly and 0.1 cc. of a solution containing 0.25 gm. of aminophylline per cubic centimeter. The child responded to the second injection with a cry. I inserted a rectal suppository containing 75 mg. of aminophylline. The child became progressively more responsive and, though irritable, took an 8 oz. (240 cc.) bottle of milk containing 1 teaspoonful of chloroprophenpyridamine (Chlor-trimeton) maleate syrup. Three hours after the first seizure, he had severe shaking of all four extremities lasting 15 seconds, apparently precipitated by a sudden noise. Because of continued agitation, I gave 0.06 gm. of pentobarbital sodium intramuscularly, followed by 15 mg. of phenobarbital orally by dropper every 3 hours for the next 12 hours. The next day the child took only liquid foods and was sleepy but looked normal. All medication was stopped. Apparently there are no localizing neurological signs. Three days later the child was eating well and was normally active. I intend to vaccinate this child for smallpox at 11 months of age. Is there any danger in this procedure?*

Joseph P. Miranti, M.D., Toledo, Ill.

Answer.—Reactions such as that described have been attributed to pertussis vaccine. Instances have been reported (Byers, R., and Moll, F.: *Pediatrics* 1:437, 1948) in which encephalitis developed, and in some cases death ensued. In a review of the subject, Toomey (*J. A. M. A.* 139:448 [Feb. 12] 1949) found that sometimes there was a history of mental deficiency in a relative of the patient. The foregoing comments explain the diagnosis in your case. The treatment administered was proper and proved satisfactory. If booster doses are to be given, it is advisable to withhold them until the child is at least two years old. It may be wise not to administer any additional doses of pertussis vaccine. If a booster of any antigen is injected, it should be given in divided doses, beginning with 0.1 cc. Unless there is an instance of known exposure to smallpox or smallpox is existent in the community or the family proposes to go on an extended journey, it would be preferable to postpone vaccination until shortly before the child enters kindergarten or school. Before giving a booster dose it may be prudent to do a Maloney test for toxoid sensitivity (inject intradermally 1/10 cc. of 1:20 dilution of the toxoid, and read the result at the end of 48 hours. A neurological follow-up examination would be a proper procedure; however, it does not seem likely that any permanent damage has been caused by the immunizing agents thus far administered.

RINGWORM OF SCALP

To the Editor:—*An x-ray epilation of the scalp for ringworm was done and a poor result obtained. How long a period of time should be allowed to elapse before this is repeated with a larger dosage?*

M.D., New Jersey.

Answer.—One should wait for at least six months to be certain that the first epilating procedure did not produce any areas of permanent alopecia. Then, too, it is well not to rely on x-ray epilation alone to effect a cure. It should be supplemented by manual epilation of hairs under the Wood's light and the use of topical applications. The whole procedure of x-ray epilation is an exact one, with a precise dosage, and should be administered by one experienced not only in the technique but also in the mycological and clinical characteristics of the disease.

FIBERGLAS

To the Editor:—*A woman, aged 41, started to work with Fiberglas in February, 1951, and in June an eruption of the fingers, hands, forearms, and wrists developed, which subsequently became generalized. She was hospitalized for six weeks. Two weeks after discharge from the hospital and away from her work, she was hospitalized again for an exacerbation of the eruption, which again improved. Patch tests with Fiberglas gave a severe positive reaction. Positive results also were obtained with other materials in a new job assigned to her. Since the onset of the eruption she has worked only three days, this being done away from the department where she worked originally. On the third day she again had an exacerbation of the eruption and had to stop work. Because of persistent vomiting, she was seen by an internist, whose impression was "acute anxiety reaction secondary to her dermatitis." In May, 1952, she was examined by a dermatologist for the Industrial Accident Commission, who gave the following opinion: "The present disability in my opinion is Dermatophytosis of the feet and toenails with an Ide sensitization eruption of the hands, forearms and lower legs. This condition may be aggravated by exposure to various types of materials used in applicant's work. This is not a case of Neurodermatitis per se but a state of allergic hypersensitivity, possibly induced by allergy to occupational materials." The patient has been treated by two competent dermatologists, who agree that her condition is primarily a contact occupational dermatitis but that now psychogenic factors are at play. Her therapy has consisted of x-rays, treatments and administration of cortisone, calcium, and antihistamines as well as locally applied medicaments. My problem is to determine compensability of the claim and to clear up the condition if possible.*

S. Howard Zoll, M.D., Long Beach, Calif.

Answer.—Fiberglas as such is as inert chemically as any other glass. A patch test, if suitably applied, would not be expected to give a positive result. There is one exception. For special purposes some Fiberglas is lubricated or otherwise coated or bonded with substances such as phenol-formaldehyde synthetic resins. Such ancillary treatments might be the source of positive responses. For precise diagnosis, it might be desirable to cleanse fully the fiber material and reapply the patch tests. A negative response should lead to exploration for coatings or other ancillary materials, and further tests should be applied using those materials in suitable dilution. Sensitization to phenol-formaldehyde on an allergic basis could account for the widespread distribution. Fiberglas may cause localized dermatitis on a mechanical basis. The condition simulates the well-known mechanical dermatitis of barbers from human hair spicules or its equivalent among brush makers from natural or synthetic fibers. This damage chiefly is limited to specific finger areas. Minute burrowing cysts may be formed. Secondary pyogenic or fungal invasion may arise. Any general distribution or systemic involvement apart from psychogenic influences is unknown.

A NEBULIZED SPRAY

To the Editor:—*What are the therapeutic values of a nebulized spray containing 2% camphor, 2% menthol, and enough liquid petrolatum to make 100%? It has been used as a nasopharyngeal spray in a machine that produces about 4 lb. (1.8 kg.) of pressure. The spray is applied while the patient inhales, an average of four inhalations being taken per treatment. The atomizer is a DeVilbiss 180, which may determine the particle size. Will the nebulized particles reach the alveoli and bronchioles under the above conditions?*

M.D., Ohio.

Answer.—A nebulized spray containing the ingredients listed is of doubtful therapeutic value. Liquid petrolatum preparations have been implicated in the production of lipid pneumonia. Nebulization may cause acute edema, desquamative alveolitis, and focal lipid pneumonia.

PARESTHESIA

To the Editor:—*Has paresthesia on the left side of the body been reported after use of antibiotics, secobarbital (Seconal), and/or cortisone for virus infection? The heart and arteries of the patient in question appear normal for his age. Results of neurological examination are otherwise normal. Roentgenograms of the head and body are normal, the blood pressure is 130/70, and the urine and blood are normal. The lymph nodes appear normal and the prostate is not enlarged. What treatment should be given?* *M.D., Mexico.*

Answer.—Peripheral neuritis has been observed following prolonged treatment with so-called broad spectrum antibiotics and has been attributed, without proof, to vitamin deficiencies. Paresthesias of the hands, tongue, and circumoral areas have been observed with streptomycin administration but have been especially prominent, even during the early course of therapy, with polymyxin. Toxic encephalopathy has been reported following use of streptomycin, and toxic psychoses have been noted with use of the sulfonamides and, rarely, penicillin or other antimicrobial agents. Paresthesias, marked numbness, and tingling have been described as one of the fairly common manifestations of chronic poisoning with the barbiturates. Transient paresthesias have also been observed to appear during the administration of large doses of cortisone. Thus, all three of the agents given to this patient may have been responsible for the symptoms described. The description of this patient suggests the presence of polyneuritis, but the strict limitation of the condition to one side of the body, with complete involvement of that side, raises considerable doubt as to the possibility of polyneuritis. Although it is stated that the patient's blood pressure and vessels were normal, his age is not given. It is possible that the unilateral subjective symptoms might have resulted from a concurrent but causally unrelated cerebral occlusion, due either to unrecognized vascular disease or to spontaneous cerebral vein thrombosis. It is well known that in persons with mild viral infections spontaneous thrombosis of cerebral veins may develop, which may vary in extent from a single vessel to diffuse closure. There is no treatment for this condition; if mild, it usually resolves itself without sequelae in two weeks or less; if severe, permanent neurological sequelae may result.

PHOTOENGRAVING FINISHER

To the Editor:—*What are the health hazards for a man whose life-long career is that of photoengraving finisher for magazines and newspapers?*

Robert C. Steinman, M.D., Stelton, N. J.

Answer.—No two shops are certain to carry out identical work operations. Likewise, in no two shops is the work of the finisher the same. In theory, the finisher's work is largely mechanical, employing burrs on the mounted etching to eliminate imperfections. In practice, the finisher may duplicate all steps of the engraver back to the point of the first work on metal plates. This being true, the potential exposures of the finisher are the same as those for the engraver. Some of these exposures are as follows: Chromium salts, chiefly ammonium bichromate, provide a threat of dermatitis and the remote possibility of lung cancer. Even more remote is the possibility of damage from ultraviolet rays and ozone from powerful carbon arc lamps. Ammonium hydroxide is always used. Powdered natural resins could cause sensitization leading to asthma or dermatitis. Varnish coatings may be applied to protect the underside of the plate; varnish constituents are substantially harmless, but the possibility of dermatitis exists. Concentrated nitric acid is the etching agent, its use involves some risks. In many shops benzene is still in use and, when used without protection, introduces the hazard of systemic benzene poisoning. The work of burring involves the risk of eye injuries, but only on a mechanical basis. Lastly, the black and colored printing inks could prove harmful, since the finisher always makes proofs to test the acceptability of his finished plates.

PERSISTENT URTICARIA

To THE EDITOR:—*Nine weeks ago, a patient was hospitalized with giant urticaria and angioneurotic edema due to camphorated opium tincture (paregoric). The acute stage subsided in six days with antihistamines and epinephrine. Two attempts to eliminate the antihistamines have caused a moderately acute flare-up. Scratch tests, declared negative, some of which showed a delayed skin reaction, were followed by another moderately acute attack. Is it advisable to continue with scratch or intradermal tests while the hives are present? Present treatment consists of administration of antihistamines, ephedrine, and calcium gluconate. Is any additional treatment indicated? Is such a prolonged attack unusual? Three previous attacks occurred, the first 12 years ago from unknown cause, the second four years ago caused by penicillin, and the third two years ago attributed to postoperative opiate therapy.*

M.D., Massachusetts.

ANSWER.—Products of opium will produce whealing on the skin in all persons whether they have allergy or not. Thus, while dermatoses and other allergy can occur from such drugs, the diagnosis must be made by means other than skin testing. Urticaria due to such drugs is almost always of short duration, and it is not likely that the persistence of the urticaria in the case described is due to the initial camphorated opium tincture reaction. On the other hand, persistent urticaria and angioneurotic edema from penicillin and less definite causes are common. While it is unlikely that the scratch tests were responsible for an acute flare-up, the further use of skin tests is likely to be of little value, since patients with urticaria and angioneurotic edema seldom show positive skin reaction to foods, even in cases in which the causative food allergen is definitely known. In order of importance, the following possible causes should be considered: (1) continued use of drugs, such as acetylsalicylic acid, acetophenetidine, penicillin and other antibiotics, sulfonamides, phenolphthalein, and barbiturates; (2) foci of infection, such as apical tooth abscess or infected tonsils or gallbladder; (3) intestinal and other parasites; (4) thermal hypersensitivity; and (5) emotional and other nervous factors. In addition to the symptomatic remedies already used, corticotropin or cortisone should be considered if the condition is disabling. Nonspecific therapy, such as use of typhoid vaccine or other protein therapy, or small dose histamine therapy may be advisable.

SICKLE CELL ANEMIA IN PREGNANCY

To THE EDITOR:—*A 21-year-old Negro girl who has had sickle cell anemia for 10 years, with numerous arthralgic episodes and one attack apparently of mild subarachnoid hemorrhage, is now five months pregnant. While the arthralgia attacks have not been noted since conception, the hemoglobin level remains about 50% (7.7 gm. per 100 cc.), despite intensive iron therapy. What complications of pregnancy or delivery would be expected? Since the patient has a moderately contracted outlet, cesarean section may be necessary. What are the dangers of surgery in this patient?*

M.D., Delaware.

ANSWER.—Sickle cell anemia is a serious complication in pregnancy, increasing the maternal and fetal hazard appreciably. The severe anemia may result in cardiomegaly and congestive heart failure. The patient should be under constant medical supervision. This anemia is not influenced materially by iron therapy, but additional iron may be desirable during pregnancy. The patient should be prepared for labor by bringing the hemoglobin level near normal by multiple transfusions. Delivery through the birth canal can be accomplished without increased risk, and cesarean section should be reserved for patients who have an indication for abdominal delivery. Regional anesthesia is desirable, and inhalation anesthesia should provide as high a concentration as possible of oxygen.

MICROGNATHIA

To THE EDITOR:—*A newborn child has a receded lower jaw. What is the cause, prognosis, and treatment of this condition?*

M.D., Rhode Island.

ANSWER.—This is a relatively rare congenital deformity consisting of an abnormally small mandible. It has been termed micrognathia or hypoplasia of the mandible. The mandibular ridge fails to contact the maxillary ridge, and, when the hypoplasia is marked, the tongue may be placed posteriorly, causing difficulty in breathing. When this latter difficulty arises, the infant may be placed on its face, or the tongue may be anchored in the anterior portion of the mouth in an attempt to make breathing easier. In severe cases a special type of splint may be necessary to pull the entire mandible forward. Permanent corrective procedures are best delayed until the craniofacial development is fairly well advanced (4 to 6 years of age). Among the operations that have been employed are the following ones: (1) addition of cartilage to build up the chin and a lower denture to fit in front of the natural teeth; (2) resection of the condyles and forward advancement of the mandible; and (3) lengthening the body of the mandible by horizontal sectioning (not usually recommended). When there is an associated cleft palate, its early closure is recommended. Since the jaws grow in three dimensions, there is a chance that if the deformity is not too severe it may improve considerably. Prognosis in any given case is difficult to determine.

HERPES ZOSTER AND TRAUMA

To THE EDITOR:—*A 66-year-old laborer was referred to this office as an industrial patient with inflammation of the right eye allegedly caused by foreign material. I found that he had bullae of the right frontal region, with swelling of the lids of the right eye, and I diagnosed his case as herpes zoster. The herpetic condition became severe but eventually cleared, leaving a pinkish mark on the right side of the forehead. The man was treated as a private patient. Since he was sent to me as an industrial patient, he felt that an injustice was done and obtained affidavits from fellow workers to the effect that, while drilling holes in rocks for blasting, compressed air threw "aggregate" into his face. The affidavits reached the hands of the superintendent. I told him that in my experience herpes zoster of the face, such as this man had, would not be of traumatic origin but that I would seek further information.*

Ralph W. Carr, M.D., Ketchikan, Alaska.

ANSWER.—Herpes zoster after trauma has been known to occur in cases in which the injury was severe enough to irritate the sensory root ganglion; however, Klauder (*J. A. M. A.* **134**:245 [May 17] 1947) has reported occurrence of herpes zoster after even light trauma, such as mild "bumps," superficial skin lacerations, and electrodesiccation of warts.

RENAL CIRCULATION DURING PERIODS OF REST

To THE EDITOR:—*In mild renal insufficiency, why do the kidneys function better when the patient is at rest or in a recumbent position?*

E. L. Carenee, M.D., Champaign, Ill.

ANSWER.—The renal blood flow is reduced, even in normal persons, during exercise and in upright posture. Glomerular filtration and tubular functions are less easily influenced, but they, too, will be affected by moderate to severe exercise. Furthermore, there is a diurnal rhythm in water and electrolyte excretion, with maximal function in the hours between 6 a. m. and noon and minimal function between midnight and 6 a. m. This rhythm is related to the sleeping and waking states during those hours. The glomerular filtration rate, while less involved, also tends to parallel the diurnal rhythm. In a patient with renal insufficiency, there would, therefore, be a favorable influence on renal blood flow and glomerular filtration rate during rest and in the recumbent position, especially since the redistribution of blood, even apart from an increase in cardiac output, is likely to benefit the renal circulation.

MALLORY-WEISS SYNDROME

To the Editor:—*What is the Mallory-Weiss syndrome as a cause or type of gastrointestinal bleeding?*

William B. DeMond, M.D., Denver.

Answer.—Like any provincial eponym, "Mallory-Weiss syndrome" should not be used without a reference or definition. It is a term well known in New England but apparently not elsewhere. In 1929, G. K. Mallory and Soma Weiss described 15 patients who, after long alcoholic debauches, had massive gastric hemorrhage. Four died, and autopsy revealed slit-like mucosal lacerations and acute ulcerations of both esophagus and stomach close to their junction. It was clear that these acute lesions had been responsible for the fatal hemorrhages. It was postulated that local trauma and acid reflux secondary to prolonged vomiting had been responsible. In a second communication three years later (*J. A. M. A.* 98:1353-1355 [April 16] 1932), six more cases were reported, and autopsy study in two that ended fatally confirmed the original conclusions. By common usage, Mallory-Weiss syndrome is understood to include hematemesis that may follow prolonged vomiting and consequent pericardial trauma in conditions other than acute alcoholism, such as acute food poisoning, uremia, and pernicious vomiting of pregnancy.

TORTICOLLIS DUE TO CERVICAL LYMPHADENITIS

To the Editor:—*I have seen many patients with unilateral torticollis secondary to acute sinusitis. The cervical nodes are enlarged and tender, and the sternocleidomastoid muscle, in spasm over the nodes, reveals tenderness, especially over its upper portion. Some patients turn their head to the affected side and others away from it. Can you explain this?*

M.D., Oregon.

Answer.—Torticollis due to painful cervical nodes is not a frequent complication of acute sinusitis. Usually the head is inclined to the affected side. When it is turned toward the healthy side, this may be explained as a compensatory effort of the opposing muscles to put the affected muscle at rest. This phenomenon has been observed in poliomyelitis, when the healthy opposing group of muscles contract to relieve the spasm of the affected group. This often leads to confusion as to which group is affected; however, the spasm of the unaffected group soon subsides. In the neck, torticollis due to spasm of a muscle overlying the affected glands will always occur on the same side if the primary infection is in the peritonsillar or pharyngomaxillary space, because of the cellulitis that affects the internal pterygoid and constrictor muscles. Torticollis due solely to inflamed cervical glands may be manifest on the healthy side because of the compensatory action of the opposing muscles.

TELESCOPIC LENSES TO IMPROVE VISION

To the Editor:—Time (60:87 [Dec. 15] 1952) *describes a telescopic lens developed by optometrist William Feinbloom of Columbia University. I have a patient with diabetes who has a severe retinopathy, who is interested in these lenses. Is this report in* Time *reliable?*

R. J. Askin, M.D., Pittsburgh.

Answer.—Telescopic lenses have long been used to improve vision not improvable by ordinary glasses. The magnification is about 2.2× for distance and up to 8× for close viewing. Contraction of the field is such that they are seldom of practical value and are useless when the macula is seriously involved. The type described by Feinbloom consists of 2+ lenses rather than the conventional Galilean type of a plus objective and a minus ocular. This provides a slightly smaller system and a negligible increase in the field of vision, but the magnification is about the same as in the familiar Zeiss and Kollmorgen lenses. A patient who would not be benefited by the older telescopic spectacles would almost certainly not be helped by the Feinbloom lenses.

PICA

To the Editor:—*A 2-year-old child persists in eating ordinary soil, and his parents have been unable to control this habit. What information is available on this tendency? Can some serious complication result?*

Don F. Russell, M.D., Van Wert, Ohio.

Answer.—Dirt eating in a child is the result of a perverted appetite, a condition known as pica. There is a natural tendency for this habit to cease spontaneously by the age of 3 or 4 years. Occasionally there is an underlying nutritional disturbance, such as anemia, or there may be a distinctly neurotic disposition. In some children pica seems to result from an unconscious urge to obtain minerals or vitamins that are absent from the diet. Occasionally, depending on the object swallowed, serious consequences may result from this practice, such as lead poisoning if the child picks lead-containing paint from toys or furniture; or various bezoars may accumulate in the stomach because of inability of the swallowed material to pass through the intestine, necessitating surgical removal.

ITCHY SCALP

To the Editor:—*A 61-year-old man has been growing balder for the last 15 years. His dry, itchy scalp is excoriated from scratching. He has used only 1% cyclomethycaine with no improvement. Is there any substance for topical treatment, except anesthetic creams, that he may use? He is in excellent health.*

M.D., Mississippi.

Answer.—The application of a cream or ointment containing 2% salicylic acid and 3% sulphur precipitate is usually effective in itchy scalp. Sometimes it is necessary to add to the mixture 0.5% of phenol or 3% of coal tar solution for an antipruritic effect. The standard textbooks on dermatology list numerous remedies for itchy scalp, and few, if any, recommend the procaine type of local anesthetic preparations, because of the relatively high incidence of dermatitis that results from their use.

CORTISONE DROPS FOLLOWING INTRAOCULAR SURGERY

To the Editor:—*What is the present practice regarding the use of cortisone drops following intraocular surgery? If this treatment is used, how soon after surgery is it started? How frequently is it used?*

M.D., Oklahoma.

Answer.—Several reports have indicated that cortisone retards healing of experimental corneal wounds as it does of wounds elsewhere. For this reason, cortisone is not generally used following intraocular surgery. The doses used in the experimental studies have greatly exceeded those that would presumably be used by the drop method in human beings. There is no evidence known to this consultant that cortisone drops have had any deleterious effect, although this treatment has been started immediately following intraocular surgery on numerous occasions. It is presumed to have some beneficial effect in cases in which tissue proliferation would be undesirable.

PREGNANCY TEST

To the Editor:—*Do you have any information on the relative accuracy of the Richardson pregnancy test (presence of estrone in urine) as compared to the standard rabbit test and on the accuracy of the same test on saliva to determine the sex of unborn babies?*

Sidney A. Cohen, M.D., Council Bluffs, Iowa.

Answer.—The accuracy of the Friedman (rabbit) test for pregnancy is greater than 95% when performed in a competent laboratory. The Richardson test is far less accurate than the several standard biological tests. Little data is available concerning the saliva test to determine the sex of unborn babies. Informal reports do not confirm the accuracy of this procedure.

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 152, NO. 14 CHICAGO, ILLINOIS AUGUST 1, 1953

COPYRIGHT, 1953, BY AMERICAN MEDICAL ASSOCIATION

PRECORDIAL NOISES HEARD AT A DISTANCE FROM THE CHEST

William Bennett Bean, M.D., Iowa City

In giving the Roger Morris Memorial address my topic should have some bearing on the medical philosophies and arts so notably embellished by Dr. Morris. I must add they have been abetted admirably by his successor, Dr. Blankenhorn. Stemming from the Oslerian tradition, which in turn was derived from continental and British sources, Roger Morris sought perfection in interpretation of signs and symptoms as revealed to the clinically sharpened senses. My discussion this evening will develop a theme in the area of physical signs where the humblest physician should be able to hold his own.

Medicine is at times fearfully serious and often gloomy, but the teaching and practice of medicine have their lighter moments and their amusing experiences, and we should make the most of them. Dealing with a topic in which physical diagnosis is the theme, it is appropriate that it fits in well with the extravagant American tendency to exaggerate; for here we have indeed the Paul Bunyan of physical signs, one which, defying the ordinary strait limits of the human frame, becomes at once a caricature and a giant. It magnifies itself in fact in the way we often tend to magnify by exaggeration after the fact.

My interest in precordial noises that can be heard with the unaided ear at a distance from the chest began in 1938, appropriately enough on Dr. Blankenhorn's service at the General Hospital, when I accidentally produced such a noise in a patient in congestive heart failure whose left lung was punctured during what had begun as an ordinary thoracentesis. When I visited him again several hours later, he had been alarmed by a noise "like a paddle wheel makes on the river," which he could hear and "feel." This simile and others likening the noise to "the grinding of gears," "the rustling of leaves," and "crunching up newspapers" are a pleasant tribute to the fertility of folk speechways. When the room was quiet, the sounds were barely audible at the foot of the bed. They could be heard clearly 2 ft. away. The sounds were synchronous with the cardiac systole. Left-sided pneumothorax was demonstrated by physical signs and roentgenograms, but no subcutaneous or mediastinal emphysema was found. The loud crackling noises (Hamman's sign) hurt the ears when the stethoscope was applied to the precordium. All abnormal sounds had disappeared in two days, and the patient made an uneventful recovery. Dr. Blankenhorn then told me of his considerable but unpublished experience with pericardial knock in World War I. This chance occurrence became "a burr that sticks in the memory," because of its close temporal association with two cases of interstitial emphysema of the lung that Johnson McGuire and I published soon after Hamman had aroused interest in the dramatic clinical features of the spontaneous form of this disorder. Another circumstance that gave my interest a wider sweep was a casual comment in Osler's essay on Sir Thomas Browne, in which he quoted from a letter about a "Woeman or mayd in Suffolk who had a julking and fluctuation in her chest . . . heard by the standers by," although this proved to be pyopneumothorax and a succussion splash.

Since these events focused my attention on noises heard at a distance from the chest, I have been on the lookout for other examples. This interest has been rewarded by the finding of several cases. Medical reports of these and other kinds of unusual and alarming noises heard at a distance have been found under the most diverse titles in the most obscure places. No cumulative index gives a clue to this sign, and, although my reading has been wide, surely many cases have been missed. Although I conceived the notion that I would review all published cases and produce an all-inclusive work, this was impossible without an "encyclopedantic" approach, time consuming beyond all reason. Most of the types of lesions and disordered functions that give rise to such sounds will be considered. While presentation of such miscellany may seem whimsical, it gives useful lessons in diagnosis, enabling the physician to give correct therapy, which may vary from reassuring the disturbed patient with mediastinal emphysema to aspirating air from the right ventricle of a heart churning with air embolism and thus saving a life.

From the Department of Medicine, College of Medicine of the State University of Iowa, and the University Hospitals.

Bibliographic references to medical reports quoted in this article and a more extensive consideration of the entire problem appears in Monographs in Medicine, Series I (Bean, W. B., editor, Baltimore, Williams & Wilkins Company, 1952, pp. 22-65).

This paper is the Roger Morris Memorial Lecture for 1953, delivered March 3, 1953, at the Cincinnati College of Medicine, Cincinnati. A portion of this lecture was given before the Midwestern Regional Meeting of the American College of Physicians, Chicago, Nov. 22, 1952.

DEFINITION

The term "precordial noises or sounds audible at a distance from the chest" is used to imply unusual loudness (rather than overacute hearing) and to indicate that the heart's action is responsible. This excludes wheezes and pleural friction sounds and even ribs cracking with a loud sound. The quantitative aspects defy analysis, since the subjective element in hearing has not been measured. Although the noises discussed here often come from outside the heart and usually are produced by impingement of the heart on air or air and fluid in abnormal places, they may be produced within the heart as extremely loud murmurs or by intracardiac air. Alteration of structure or abnormality of function of the lungs, pleura, mediastinum, pericardium, alimentary canal, and heart causes such noises under peculiar and sometimes poorly understood circumstances.

HISTORICAL BACKGROUND

Ancient medical records contain no reference to sounds heard at a distance from the chest. The Bible has no precordial companion for the abdominal rumblings of Isaiah "whose bowels sound like an harp." There is no thoracic counterpart of the borborygmal chorus of Aristophanes' "Clouds." In the posthumous works of Robert Hooke, written just 250 years ago, are these prophetic words: "Who knows but that one may discover the works performed in the several offices and shops of a man's body by the sounds they make, and thereby discover what instrument or engine is out of order!" Only with the perfection of the art and science of physical diagnosis was an interest in pulmonary and cardiac sounds and noises developed sufficiently to record cases of trouble in the engines and instruments of man's chest. Almost every kind of condition capable of producing such noises was identified during the resurgence of physical diagnosis in the 19th century, with contributions about evenly divided among French, British, and German clinicians. Experimentally many types of noises have been produced by a number of investigators, whose widely scattered work has not been gathered for review.

CHEST AND MEDIASTINUM

Pneumothorax.—Sounds heard at a distance from the chest have been described in left-sided pneumothorax, the spontaneous, therapeutic, and traumatic varieties. An open chest wound increases the likelihood of such noises occurring after injury. This sign is well known among clinicians familiar with therapeutic pneumothorax for tuberculosis. Indeed the act of inducing pneumothorax on the left side may cause unusual noises that are heard by the patient, attendants, and physicians. A division of cases has been made on the basis of the source of air in the thoracic cavity:

Traumatic Pneumothorax: It is by no means clear that some cases discussed under hydropneumothorax, notably those of Bricheteau in 1844, are not actually cases of traumatic pneumothorax or pneumomediastinum rather than pneumopericardium, which he diagnosed. Furthermore, it is likely that some of the German cases of frightening *Mühlengeraüsch*, which are attributed to air embolism, belong in the category of traumatic pneumothorax or mediastinal emphysema. Morel-Lavallée, in 1864, reported the case of a 27-year-old coach driver who was run over by a carriage. His chest was bruised and several ribs were broken. Subcutaneous emphysema was noted. The *bruit de moulin* was heard everywhere near the bed. This noise of the mill is a happy simile, since the combination of water splashing rhythmically and a background sound of wooden machinery and running water is elegantly reproduced in miniature by the sound of pneumopericardium or pericardial knock, as anyone knows who has listened to both. The sound lasted for five days and was so troublesome at night that the man could scarcely sleep. In due course the cure was complete. Although Morel-Lavallée thought the cause of the trouble was perforation of the pericardium, traumatic pneumothorax or mediastinal emphysema seems more probable.

The havoc of World War I was not without its small and casual by-product of clinical observations on the sound that was given the prosaic but accurate title of pericardial knock. The note of Captains Rees and Hughes in the *Lancet,* January, 1918, classic in its brevity and clarity, deserves quotation in full:

> We should like to call attention to loud "tapping" sounds which we have heard over the cardiac area in nine cases of wounds penetrating the left chest, where the missile had lodged near the heart, or where the track of the missile has passed in its close proximity. These sounds were quite distinctive and similar in each case, only varying in intensity. They were most marked when the patient was first examined after wounding and persisted for a variable time, occasionally for only 24 hours, but in one patient they were still present on evacuation a fortnight later. The sound continued even when the breath was held, although the intensity varied with respiration, increasing during inspiration and diminishing during expiration in all cases. It was sychronous with the heart beats, and when loud rendered the heart sounds inaudible. In four patients the sound could be heard with the ear held some inches away from the chest, and the patients were even conscious of it. The sound had no resemblance to pericardial friction, and in the cases referred to there was no suspicion of any gas being present in the pericardium, which has been described as giving rise to very extraordinary noises.

Henley Munden, bringing up the chance of sport and the risks of rabbiting, reported the following case:

> I was called to see a boy who had been accidentally shot in the head and left side of the chest when rabbiting. About an hour before he died a loud cardiac "click" developed which was synchronous with the heart systole and could be heard distinctly six or eight feet away. It bore no relation to the respiratory movements, as the respiration was Cheyne-Stokes in character and the sound persisted during the period of apnoea. The . . . click in the ear-piece of a telephone when the lever is raised illustrates it very well. During the last fifteen minutes of life the heart became very feeble and irregular and the "click" disappeared. I was very interested to read [an] explanation of the phenomenon, as I was quite unable to account for it. A postmortem examination was not ordered by the coroner, so no further investigation could be made.

Spontaneous and Induced Pneumothorax: I cannot find with certainty the earliest recorded case of sounds produced by pneumothorax. Perhaps the first is that of Cornils in 1885, who reported loud noises produced by the heart in a 23-year-old man with pulmonary tuberculosis and left pneumothorax. They were heard several times by persons some distance from the patient. Autopsy revealed left-sided pneumothorax and advanced tuberculosis. There is little doubt that previous experience with

Mühlengeräusch, the mill wheel noise of an earlier day, and its production by air embolism misled some German physicians into supposing that pneumothorax somehow caused air embolism and thus produced the loud and distantly heard sounds. I found another case published by Wolferth and Wood, in 1930, under the unlikely title of angina pectoris. In discussing the problem of pain in the chest they described a young University of Pennsylvania student who, in the throes of preparing for examinations, experienced pain over the heart. It was paroxysmal and became worse on exercise. It was supposed that a wrestling bout a week before might have precipitated the small pneumothorax on the left side found on roentgenograms. On running he had noticed "a sensation as though his heart were 'flopping around loose' inside of him," and "five days before, his roommate, while across the room, had heard his heart beating." The heart sounds, clear in the erect position, were not heard when he assumed the recumbent position.

Scadding and Wood recorded a number of cases in 1939. The first was that of a 26-year-old man who had a twinge behind the left shoulder blade. "Four days later, on first waking in the morning, he noted a 'curious bumping sensation' in the chest, accompanied by a faint sound." This was verified by the authors, who found a slight pneumothorax on the left side by roentgenographic examination. The sounds were heard only in the recumbent position. The second patient, a lad of 17 years, "complained of a heart beat on adopting a 'hunched up' posture; the noise could be heard by his mother a yard away." The sound could be heard off and on for 20 days. Roentgenograms showed the suspected partial left pneumothorax. The third case was that of a 19-year-old girl who had therapeutic pneumothorax on the left side for pulmonary tuberculosis. During induction, after 25 cc. of air had been injected, "a distinct click late in systole became audible in the region of the apex beat." It vanished when 150 cc. more were injected. On the next day, however, she had occasionally noted a clicking sensation in the precordium. Their last case, a retrospective and presumably autobiographical one, was that of a young man in perfect health who had "a sharp pain in the chest, and this was followed by an extremely loud peculiar noise accompanying the heart beat. The noise was so loud that it could be heard in the room below." Three weeks later it disappeared without complication, despite the diagnosis of rupture of a heart valve. This case, even allowing for the recollection of 20 years, holds the all-time record for loudness, as far as I have been able to ascertain. Frost and Bing described a 17-year-old youth in whom spontaneous pneumothorax developed on the left while bicycling. There was pain and breathlessness. "When the patient was placed on his left side there was a distinct extra sound which was now and again so loud that it was audible to the patient and even to other persons one meter away from him. The sound most resembled the clicking of the tongue used to urge on a horse."

Interstitial Emphysema of Lung and Mediastinum.—It is appropriate that Laennec, whose invention of the stethoscope opened the modern era of clinical observation of diseases of the chest, was the first to describe sounds heard at a distance in interstitial emphysema of the lung. Indeed he gave one of the earliest satisfactory descriptions of the lesion itself, noting "beads of bubbles along the pulmonary strands." He remarked that childbirth, weight lifting, and straining at stool were likely causes. In addition to the dry crepitant rhonchus with large bubbles, he observed subcutaneous emphysema. He said, "The patients are sometimes sensible of a kind of crackling in the part affected." This statement is the earliest record of sounds audible at a distance. Although Skoda confirmed these observations and Müller emphasized them, neither described sounds heard at a distance. There are undoubtedly other early cases on record, but the contemporary scene with its numerous papers had its curtain raising in Hamman's rediscovery of the clinical characteristics of interstitial emphysema of the lung. He gave the first description of apparently spontaneous episodes and so vivid a discussion of the subject that it at once caught the fancy of physicians. I should mention my good fortune in having seen one of his patients when an intern at Johns Hopkins Hospital. Excerpts from his papers include the following cases in which noises were heard at a distance from the chest:

> A 51-year-old physician had pain in the chest while shaving. On the evening of the next day while "lying upon his left side, he heard a curious loud, bubbling sound with each contraction of the heart. His wife sitting upon the bed beside him could hear it very plainly."
>
> A young physician, aged 25, had a sudden pain in the left side of the chest and a peculiar crackling sensation in the region of the heart. A few hours later "as he was leaning upon his desk he suddenly heard a curious crackling noise, apparently coming from that part of the chest where the pain was located. . . . It could be heard when the bare ear was held a foot from the chest wall."

It did not take long for reports of similar cases to be published. Morey and Sosman (1939) told of a husky medical student in whom a severe pain in the left upper precordial region suddenly developed while he was working in the laboratory. The pain radiated down his left arm and was different from pain associated with pneumothorax, which he had experienced previously. On the morning after the precordial pain began, he became conscious of a knocking and clicking in his chest. At times he could feel it, and at other times he could hear it. "Anyone standing directly in front of him could hear the noise." Somewhat later that year, McGuire and I reported two instances of spontaneous interstitial emphysema of the lung and described the patient already mentioned in the introduction. The first patient, a 17-year-old school girl, felt a pain in the chest while dribbling a basketball, went home, and went to bed. "Shortly afterwards she heard a curious noise in her chest and told her mother that she thought she had pleurisy." In the other patient, sounds were not heard at a distance.

Pinckney, in 1941, reported the remarkable case of a 24-year-old white woman who had six different attacks of spontaneous pneumothorax, in some of which there was interstitial emphysema. On her third attack she had dull pain and dyspnea. "She also noted a loud, clicking, snapping noise audible at all times no matter what position she assumed. In addition when lying on the left side she heard another sound, a crunching, crackling sound like small chicken bones being crushed. This sound she cannot say with certainty was synchronous with her heart beat. Both sounds were easily audible to persons in the room with her." On her fourth attack three months later, pain developed while she was walking. Several hours afterward there was a loud clicking noise, and a crunching sound became audible. Roentgenograms showed a small pneumothorax on the left side. With her fifth attack 15 months later, she had only a heavy sensation. "Again the very loud clicking noise, synchronous with each heart beat, was easily audible to anyone within twenty or more feet, and slightly less audible was the crunching noise when she sat leaning forward on her left side." This lasted for six weeks, during which time her lung reexpanded. Pinckney reported another case, that of a 24-year-old man in whom severe pain developed while at rest. While lying down at bedtime on the third night after the onset of the pain, both the patient and his wife were startled and terrified to hear a loud clicking noise emanating from the region of the patient's heart, audible several feet away. It lasted only 24 hours and gradually subsided. The presumptive diagnosis was mediastinal emphysema. Miller reported the case of a 27-year-old resident physician at the Cincinnati General Hospital who had a sudden knife-like pain in the chest while making ward rounds. He was put to bed. A small left-sided pneumothorax was discovered. Two days after the painful attack, he had recurrence of sharp pains over the left precordium. "Soon after this he heard peculiar loud clicking noises in his chest synchronous with the heart beat. Palpation by the patient over the sternum revealed a thrill was present. The patient's wife who was standing five or six feet away from the bed was also able to hear these sounds." Greene reported the case of a 41-year-old Negro physician who, while sitting at his desk, had severe substernal pain, which radiated to the left shoulder. He went to bed immediately and noted that lying on his left side produced more pain and caused tapping, crunching, and bubbling sounds to come from the chest. These sounds were audible to his wife at the bedside and were synchronous with the heart beat. Later a roentgenogram of the chest revealed air in the anterior mediastinum.

During the pandemic of influenza in the latter part of World War I, many observers reported interstitial emphysema of the lung and pneumothorax complicating influenza and its attendant pulmonary sequelae. Although subcutaneous emphysema and pneumothorax were recognized, apparently no one described Hamman's sign or noises heard at a distance from the chest. Mediastinal emphysema and pneumothorax complicating parturition has been recorded as a not too rare complication. In the review of Gordon in 1927 and that of MacRae in 1949, no mention is made of sounds heard at a distance from the chest, although the characteristic noises heard by auscultation were described in many instances.

Traumatic Mediastinal Emphysema.—It is not always clear from descriptions whether certain traumatic cases in which precordial noises were heard at a distance from the chest should be put in the category of mediastinal emphysema or pneumothorax or both. Steiger, in 1864, described a man who fell, fracturing his arms, shoulders, and ribs. He had marked precordial tympany, and a splashing, metallic sound synchronous with the heart beat was heard at a distance from the chest. Since this patient recovered it is not known whether he had pneumothorax, pneumomediastinum, or mediastinal emphysema, but in all probability his case represents the same type in which pericardial knock is heard. In 1875, Leonspacher described precordial tympany and musical heart sounds heard 3 ft. from the bed in a man who had fallen on his back. He, too, recovered, and the exact nature of the lesions was not known. Weil recorded an instance of mediastinal emphysema in a young man who was given an injection of procaine into the brachial plexus, in whom sounds were heard at a distance for a few minutes. Jehn in 1921 described an 18-year-old boy who fractured his larynx. Sounds synchronous with systole and diastole were heard at a distance from the chest. After death, air as well as pus was found in the mediastinum.

ALIMENTARY CANAL

Rupture of the Esophagus.—In 1722, Boerhaave reported the first case of rupture of the esophagus. "We have the surprising observation which is perhaps the only one published, namely the illustrious Baron Wassenaer, Lord High Admiral to the Republic, after intense straining and vomiting broke asunder the tube of the esophagus near the diaphragm so that after the most excruciating pains the aliments which he swallowed passed, together with the air, into the cavity of the thorax, and he expired in 24 hours." Unfortunately, there is no comment on any sounds heard at a distance from the chest. In a number of recent reviews that have emphasized the importance of diagnosing rupture of the esophagus because of the possibility of surgical relief of the condition, there is no comment on noises heard at a distance from the chest. As far as I have been able to find, the only clearly demonstrated case was that of Begbie, published in 1863, in which he described a patient with carcinoma of the esophagus which ruptured into the pericardium, and splashing and churning sounds were heard at a distance from the chest.

Ectopic Borborygmi. — Portions of the esophagus, stomach, and colon may contain trapped air, which produces sounds heard at a distance, with the heart beat providing the percussion force. At times the pulse can be counted from such sounds, although there are apt to be variations produced by respiration, changes in position, and belching or expulsion of flatus. A unique case of precordial noises reported in a brief note published by Allen is quoted in full:

> A woman came for examination complaining of "heart trouble" of unusual nature. She had been disturbed by a noise synchronous with the heart beat which had appeared intermittently for two years. It frequently bothered her during the day but was likely to be particularly troublesome when she was lying down at night. The sound was so loud that it was heard for a considerable distance from the body. Not only the patient but other people could hear it; the latter even before the patient entered the room. She described it as resembling the splashing of water in a mill. The cause of the noise was discovered more or less by accident. She had moderately severe anemia which had not responded to treatment. X-ray examination of the gastrointestinal tract was made in order to see if there was any lesion responsible for loss of blood. It was found that she had a diaphragmatic hernia; the large part of the stomach was lying in the chest. The sound was produced through action of the beating heart on the contents of the intrathoracic stomach.

Greene, who has contributed notably to the study of such noises, described some curious observations. In one patient with a pneumothorax on the left side who was being prepared for introduction of more air, a metallic, knocking sound began to emanate from the chest, audible at a distance of 3 ft. Several minutes later borborygmus was heard, and the sound disappeared without introduction of more air or changes in position. In this and another patient, introduction of air into the colon, sufficient to distend the splenic flexure again produced the noise with the metallic, knocking quality, sometimes heard in systole, sometimes in diastole. It was concluded that when heard in systole it was caused by rotation of the heart, which struck the diaphragm immediately above a bubble of gas in the colon, and that when heard in diastole it was caused by the free fling of the uncushioned heart striking the diaphragm.

HEART

Pneumopericardium.—Even before Laennec's observation, Morgagni spoke of having heard the splash of water and air in the pericardium, and Portal had encountered this combination at autopsy without recording clinical findings. The first real advance in this topic was the observation of Brichteau in 1844, who described a Polish veteran of Napoleon's army who was struck down by a blow on the chest with a carriage tongue. His wife heard "boiling" in his chest, and Brichteau and eight assistants all heard it. The man died, and autopsy disclosed pericarditis, with the profuse formation of evil-smelling gas. Stokes' (1855) observations speak for themselves:

> The patient was a young man of lymphatic temperament, who had laboured under an attack of acute pericarditis for a few days before I saw him. On my first examination he presented the usual signs of dry pericarditis, with a considerable effusion of lymph of the ordinary consistence. The rubbing sounds, though loud and distinct, had nothing unusual in their character, and the patient suffered but little distress. After two or three days I saw him again, and found that his state had become very much altered. His appearance was haggard and worn, and he complained of extreme exhaustion, which he attributed to a total deprivation of sleep. This was induced by the extraordinary loudness and singular character of the sounds proceeding from the cardiac region; for though up to this period the rubbing sounds were distinctly perceptible by means of the stethoscope, the patient was quite unconscious of their existence. They had suddenly, however, become so loud and singular, that the patient and his wife, who occupied the same apartment, were unable to obtain a moment's repose. On examination, a series of sounds was observable which I had never before met with. It is difficult or impossible to convey in words any idea of the extraordinary phenomena then presented. They were not the rasping sounds of indurated lymph, or the leather creak of Collin, nor those proceeding from pericarditis with valvular murmur, but a mixture of the various attrition murmurs with a large crepitating and gurgling sound, while to all these phenomena was added a distinct metallic character, and I could form no conclusion but that the pericardium contained air in addition to an effusion of serum and coagulable lymph.

The most detailed and clear-cut study of the problem was reported by Morel-Lavallée, in 1864. After some shrewd speculation, he reports several cases. The first was that of a 20-year-old carpenter, previously healthy, who fell from the seventh floor, hit a projection on the fourth, and crashed to the ground. Shock, fractured left leg, incomplete paraplegia, and hematuria ensued. On the next day the man said that during the night he had been awakened several times by a noise coming from the left side of the chest resembling that produced by blowing into a wide bottle. It lasted seven days and was never heard in a sitting position. He died suddenly while trying to sit up on his bed. Autopsy showed multiple ruptures of the pericardium, with air in it, slight pneumothorax, and communication between pericardium and pleura. Two kinds of noise were heard, one the mill wheel sound and one a kind of metallic tinkle. Another patient, a 45-year-old coachman, had fallen beneath a horse, which stepped on his chest. A bruise the size of the hand was found over the sternum. Bony crepitus was detected. After a stormy course, precordial sounds increased in intensity and were heard 1 m. from the chest. Autopsy revealed widespread sepsis, with traumatic pyopneumopericardium.

Walshe recorded the melancholy accident of a careless sword swallower, who pierced his pericardium through the gullet and had a noisy pneumopericardium with unadvertised sound effects. James, in 1904, made an extensive survey, which included most of the previously reported cases along with a case report of his own. In a 25-year-old Irish woman pneumopericardium developed as a sequel to injury of the esophagus from a fragment of mutton bone. The pertinent observations were as follows:

> When the patient takes a full breath and holds it there is heard by the listening ear, held twelve inches from the chest wall, a peculiar clicking sound synchronous with cardiac systole; this click has a musical quality with the quality of a succussion sound or splash. The first sound is accompanied by a loud metallic tinkle of splashing, gurgling quality, suggesting the sound made by an old-fashioned overshot waterwheel, the *bruit de la roue hydraulique.* It is as if a very marked succussion were brought out by each systolic contraction of the heart, together with many metallic tinkles. . . Its intensity varies from time to time without apparent reason.

Air Embolism.—It is not surprising that air embolism is a subject about which there is much rumor and general discussion and relatively few case reports, since air embolism indicates an accident. Durant, Long, and Oppenheimer discussed this problem in their article on pulmonary air embolism and stated, "In the pulmonary or venous form the presence of air in the right ventricle produces a loud churning sound often readily heard without stethoscopic aid which is known as the mill-wheel murmur. This murmur appears almost immediately after air has entered the venous circulation." In 1950, Stallworth, Martin, and Postlethwait described a patient in whom air embolism developed as a consequence of an operation or infusion of blood during deep shock, and the characteristic sound was described as a mill wheel murmur. Although it was not explicitly stated that this was audible at a distance from the chest, a letter from Dr. Stallworth mentions that, once it had been heard with the stethoscope, close attention permitted the observers to hear it without the stethoscope.

Heart Murmurs.—Before the introduction of the stethoscope focused the clinician's attention on sounds produced by the heart, there were references to audible precordial sounds found in conjunction with heart disease. Some of these are described so vaguely that they are of little value. Others probably merit inclusion in what has now become a formidable list of endocardial murmurs heard at a distance by the unaided ear. Allan Burns described a patient seen by Dr. Brown in the Edinburgh

Hospital, a man with dropsy who had "a jarring when the ventricles contracted; and when the hand was laid on the side it resembled the feeling of a varicose aneurysm; his expectoration when he used exercise was bloody; he had unusual palpitation, jarring sensation and hissing noise, as of several currents meeting; the sound was frequently audible as in the varicose aneurysm." Mitral stenosis, pericarditis, and induration of liver and lungs were found after death. Burns referred to the phenomenon as "audible palpitation," and the presumption is strong that the sound was heard at a distance, although it is not explicitly so stated.

Laennec had given this matter detailed study, and his observations are so unusual that they must be ascribed to marvelous acuity of hearing or to his having been carried away by rhetorical enthusiasm. The following quotation is from Forbes' translation:

> It had long been believed, but rather on the faith of traditional report than from actual observation, that the pulsations of the heart may be sometimes heard at a certain distance from the patient. Corvisart informs us that he had observed this fact but once, and only then on placing the ear very near the chest. Many years since, I was informed by several patients, that they were subject to palpitations of such severity that they could be heard at the distance of several paces; and one of these patients, as well as persons of credibility, witnesses of the fact, assured me that in his case the palpitations, could be heard in the chamber adjoining that in which he slept. I observed this phenomenon for the first time in the year 1823, in the case of a young woman; and having since then paid particular attention to the circumstance, I am convinced that although it is very uncommon to meet with it in so great a degree as that just mentioned, it is very common to find it in a less degree, such, namely, as to be heard at a distance of from two to ten inches from the chest. Several of my colleagues, to whom I had mentioned the fact, have likewise noticed it several times since; and M. Lerminier, among others, was kind enough to send to my Clinic, in 1824, two patients in whom it was perceptible in a very considerable degree. In no case have I myself heard the pulsation at a greater distance than a foot and a half or two feet; but we can readily admit the possibility of this. I have several times ascertained from the perfect accordance of the sound with the pulse, that it was owing to the contraction of the ventricles. I do not recollect to have ever heard it produced by the auricles. Out of more than twenty subjects in whom I have heard the pulsation at a distance of from two inches to two feet, three or four, at most, were affected with organic disease of the heart. All the rest labored under palpitation of a purely nervous kind. . . . Never having had an opportunity of examining the body of anyone who had presented this phenomenon, I cannot speak with any certainty as to the organic cause of it; but I am induced to consider it as owing to the presence of a greater or less quantity of air in the pericardium.

Such a distantly heard sound appeared in Laennec on his deathbed. Andral's commentary on this interpretation is worth including: "Laennec's explanations of these sounds of the heart heard at a distance, appears not to be sustained by fact. It is a mere supposition of his that gases in the cavities of the heart produce this phenomenon. The supposed analogical facts cited by him in support of his opinion, have no real analogy."

In the classical description of hyperthyroidism which has given him eponymic fame, Graves encountered the phenomenon of heart sounds heard at a distance: "In one the beating of the heart could be heard during the paroxysm at some distance from the bed, a phenomenon I had never before witnessed, and which strongly excited my attention and curiosity. [The patient], her friends, and Dr. Harvey all testified the frequency of this occurrence, and said that the sound was at times much louder than when I examined the patient, and yet I could distinctly hear the heart beating when my ear was distant at least four feet from her chest!"

Stokes reported two instances of murmurs heard at a distance in "extensive and irregular ossification of the aortic orifice." The sounds were audible to the patients, and in one "perception of these sounds was the principal cause of his suffering for his general health long continued excellent, and the heart's action was but little excited. This gentleman once observed to me that his entire body was one humming-top. The loudness of the tone varied with the force of the heart. When I first saw him the sounds were audible at a distance of at least three feet, but when the force of the heart had been reduced . . . the loudness of the sound at the aortic orifice was so much reduced as to render it inaudible, unless by applying the ear." Humming was heard over the limbs, probably transmitted by bone.

Simpson described a 40-year-old man who, while helping to move a piano down a flight of stairs, "suddenly felt something give way in his chest, and immediately heard a noise proceeding from it, which he compared to that 'made by a young frog.' " It was audible to those about him as well as to him. It could be heard for nine months and then faded out. Four and a half years later he died of heart failure, having signs of free aortic regurgitation. The diagnosis of rupture of an aortic valve was made.

Frew and Finlayson related the distressing sequel to a brawl that befell a 39-year-old man. Although no blow was struck, there was much straining and struggling. There was a " 'cooing sound' in his chest resembling the soft cooing of doves. . . . This cooing sound was also heard so plainly by his wife that she complained of its disturbing her while in bed with him." It was heard readily 1 to 2 ft. away from the chest; and there were signs of aortic regurgitation. The sound could be heard for many months but was gone 19 months after the onset. He died in congestive failure 34 months after the accident.

In his classic study of rupture of the aortic valve, C. P. Howard described 21 cases in which the murmur was heard by the patient and his friends. This number represented about a third of the nontraumatic cases. The variations in loudness of the sound are illustrated by the following reports: Quain's case, heard several inches from the chest; O'Neill, 6 ft.; Dupuis, 15 to 20 cm.; Tranquilli, 50 cm.; Schneider, 25 cm.; and Schlecht, several centimeters. Along with other examples, the murmur was compared to the "croaking of a frog" and the "cooing of a dove or pigeon" and was described as a "rumbling, rustling noise," a "humming noise," a "whistling noise," a "buzzing in the chest," a "musical murmur or thrill," a "whining noise," and even a "rattle in the head."

Bellet and his associates have made a notable contribution in the problem of precordial noises in their articles on musical murmurs of aortic insufficiency. They emphasized the part played by eversion of an aortic cusp diseased by syphilis. In their first paper, only 1 of 11 patients had murmurs heard at a distance: "The patient's bedfellow was considerably annoyed by the unusual and constant noise." In this and three other instances the murmurs were audible to the patient, presumably in the same distressing way as to Stokes' poor patient, who likened himself to a humming top. This distinction between murmurs heard by a patient but not by others suggests that vibrations may be transmitted directly to the cochlear apparatus through the bone, blood vessels, or other tissues of the body rather than by air transmission. In their second group of patients, 4 of 18 patients complained of hearing noises that interfered with sleep and made them nervous. One man produced such a noise that it disturbed his wife at a distance of 7 ft.

While this section was being written, I saw a patient with rupture of the aortic valve on the Medical Service of the University Hospitals at Iowa City. He was a 41-year-old cement worker. He and several members of his immediate family had dislocated lenses but no other stigma of arachnodactyly. Though he had had infrequent bouts of shortness of breath with exercise and other spells of palpitation with tachycardia, they had not interfered with work. He had no history of rheumatic fever. When he was examined for the Army in 1941 nothing was found wrong with the heart, but he was disqualified because of his eyes. On Sept. 19, eight weeks before hospitalization, he experienced the sudden start of dyspnea while he was laying a cement floor, but there was no direct connection with any act of lifting or straining, even though he joked about handling 100 lb. objects as trivial. Dyspnea even at rest has characterized his state ever since. Orthopnea and edema increased in severity until he was admitted to the hospital. Examination disclosed the usual features of congestive failure and the peripheral and cardiac signs of free aortic regurgitation. After a regimen of rest, digitalis, diuretics, and restriction of salt, he was much improved. The heart evidenced great overactivity, chiefly of the left ventricle. A diastolic thrill was intense in the second right interspace and the third and fourth left interspaces. Pulsation of the subclavian and carotid arteries gave evidence of the wide pulse pressure, which was measured as 150/0 mm. Hg. There were pistol shot sounds, Duroziez's murmurs, a Corrigan pulse, and capillary pulsations. At the base there was a loud diastolic murmur with a rough grating quality, not at all musical. This spread over the entire precordium, and over the mitral area I heard the presystolic rumble of a Flint murmur, which had been mistaken for that of mitral stenosis on admission. A loud systolic murmur occurred at the base. There was no aortic valve closure sound, but the pulmonary second sound was loud. The diastolic murmur was so loud that it was clearly heard by the unaided ear 1 in. from the chest on the ward and 6 in. away in a quiet room. It was not audible to the patient. Roentgenograms revealed 4+ left ventricular enlargement and no left auricular enlargement. Electrocardiograms showed the pattern of left ventricular hypertrophy. After further convalescence the patient was discharged, and although his exercise tolerance is poor, he is not in congestive heart failure.[1]

BIZARRE AND MISCELLANEOUS SOUNDS

Some records of sounds heard at a distance from the chest are so obscure as to defy precise classification. Perhaps the first example of such strange cases is the one in a footnote in Laennec's book on auscultation, a case recorded by Andral, as follows: "I lately saw a woman who complained of palpitations of the heart. Each stroke of this organ was accompanied by a peculiar gurgling sound, which evidently came from the precordial region, and was heard only when the heart struck the ribs; it was perceptible at a distance." Frost and Bing, whose admirable but brief review of the subject of loud precordial noises appeared in 1940, described a healthy 22-year-old woman who was seized suddenly by a "crick in the back," a sensation that something had come loose in her chest, and then pain in the chest and left shoulder. A blowing systolic murmur and some vague scratching sounds were heard along the left sternal border. During hospitalization, she had a sense of precordial fulness, "like a ball being squeezed out between two fingers," and sounds came from her precordium so loud that they were heard 3 m. away. The sounds were synchronous with the heart beat and were loudest when she was lying on her left side, disappearing when she turned to the right. Phonocardiograms showed the sounds to be systolic in time but spaced at variable intervals from beat to beat. Intensive roentgenographic and other studies failed to reveal any lesion of the lung, pleura, pericardium, or heart. The likeliest guess is that pulmonary interstitial emphysema was responsible, but the issue is in doubt.

Warburg, who scarcely mentioned such phenomena in his monograph on cardiac trauma, described elsewhere a man with mitral stenosis and auricular fibrillation observed many times in congestive heart failure. With an obscure infection he had fever of short duration, and "during the last 24 hours he had heard a sound from his chest which he described as though something were dripping; he said that he thought his heart had burst. His wife was able to hear the sound when she was lying in the bed beside him. I was able to verify his statements. At every heart beat a clicking or slightly sonorous sound was audible in the room.... A phonocardiogram showed that besides the sounds usually found in this patient there was a new murmur, partly during the systole, partly immediately after the systole. It was quite clear that the new sound included higher frequencies than the other sounds."

Levine and Harvey recorded the case of a 45-year-old woman with well-compensated mitral stenosis and auricular fibrillation. After exercise, a weird sounding, rough musical murmur "was actually heard with the naked ear a foot away from the chest . . . For several years she had been aware of a peculiar noise in her chest at times. We have heard it at irregular intervals, sometimes only for a few seconds, at other times constantly and then it might be absent for days. It is not related to position of the body or to breathing. . . . There is no x-ray evidence of diaphragmatic hernia or any other abnormality that might throw light on its causation."

Dr. Lewis January has called to my attention a rare instance of a healthy young man whose heart sounds were clearly audible several inches from his mouth when it was held open. He had no heart disease. X-ray study of the chest, esophagus, and upper gastrointestinal tract showed them to be normal. Perhaps some anatomic quirk permitted his esophagus to be patulous when his mouth was open and to act as a megaphone. Although I have looked for such a sign many times, I have not yet come across it.

---

[1] Since submission of this paper for publication this man died suddenly at home. No autopsy was performed.

In conclusion, I offer an autobiographical note: Occasionally, when my stomach contains just the proper quantity of fluid and air, a happy postprandial mixture, and when semirecumbent in an easy chair, a systolic tinkle or splash is clearly audible to me and very diverting. It has been heard by others a foot away. The cardiac impulse on the diaphragm and stomach obviously produces the sound. It generally vanishes after a few minutes or can be eliminated by belching; but swallowing air or air and water has not brought it back at will.

COMMENT

Beyond serving as a repository for esoterica, is there usefulness in collecting such diverse disorders with the common denominator of noise heard at a distance from the chest? Certain gleanings may reward closer study. While the figures defy statistical analysis, data in the table suggest that loud heart murmurs are the commonest cause of the phenomenon, followed by interstitial emphysema, pneumothorax, and pneumopericardium. Records of the other conditions are less numerous. From the topographical and mechanical view, air free in the chest from interstitial emphysema or pneumothorax, spontaneous or accidental, heads the list; cardiac murmurs come next and then pneumopericardium. Since the sources of this review have been casual and the survey sporadic, the data may not be representative. In some specialties, particular problems may be missing or too heavily represented. A surgeon's reading and experience would no doubt assemble a different array of noise producing conditions.

Conditions Causing Precordial Noises

Condition		No.	%	Total %
Heart murmurs		57	35	35
Spontaneous interstitial emphysema		28	17	21
Traumatic interstitial emphysema		6	4	
Spontaneous pneumothorax		15	9	16
Traumatic pneumothorax		12	7	
Pneumopericardium		25	15	15
Abnormalities of the alimentary canal		8	5	5
Miscellaneous		7	4	4
Air embolism		6	4	4
Location				
Lung and chest		61	..	37
Heart valve		57	..	35
Pericardium		25	..	15
Alimentary canal		8	..	5
Miscellaneous		7	..	4
Heart or pulmonary artery (air embolism)		6	..	4
Organ				
Heart	Valve	57	..	55
	Pericardium	25		
	Air embolism	6		
Chest and lung		61	..	36
Other		15	..	9
Mechanism				
Air		100	..	61
Heart valve		57	..	35
Other		7	..	4

The general problem of such noises may be considered by using interstitial emphysema of the lung as an example: In such a disturbance the noises heard at a distance are an exaggeration of a sign that much oftener is confined to the chest and can be heard only by the customary method with the stethoscope. Noises heard at a distance may be so loud as to command instant notice or may be heard by the unaided ear only after being heard with the stethoscope and then listened for attentively. Phonocardiographic records, of which several are reported, serve to demonstrate the sometimes irregular timing of such noises during systole and perhaps quiet the suspicion of skeptics that such noises are illusions. What constitutes the urge to publish case reports has never been known, but one has only to hear these eerie sounds to appreciate the high clinical drama. Published cases represent an unknown fraction of those met clinically. Certainly, illuminating papers, such as the late Louis Hamman produced, were followed by a wave of case reports, and a useful diagnostic sign caught popular fancy and became a medical fashion.

Clinical features of spontaneous interstitial emphysema of the lung may suggest acute myocardial infarction, but usually the complaint of pain in the chest is more insistent than the meager signs of difficulty. The patient is in pain but looks well, usually breathes easily, and is not in shock. Generally he is young, vigorous, and active, without signs or a history of hypertension, angina, or vascular disease. Later reactions, such as fever, leukocytosis, and rapid erythrocyte sedimentation, do not follow. Such a loud noise may be produced only in certain positions, so that change of position or movement will enhance or quiet the ticking chest. The noises have been reported as audible at a distance in about 10% of the recorded cases. The loudest noise, measured in distance heard, was perceived 20 ft. from the patient. Duration varied from two hours to two weeks. There was much variation in the intensity; sometimes everything would be quiet and then the sounds would return. As a general rule, they would come and go. In all except one case, the sounds were heard best with the patient lying on his or her left side, and many were able to demonstrate the sound at will by assuming the proper position. I saw one young man whose main distress was not the pain in the chest but the fact that the noise coming from his chest was so loud his wife made him sleep in the next room. He could not turn and eliminate it, but finally it went away, and he gained his reprieve. Several other reports suggest that such noises are a rare cause of temporary domestic infelicity, and they are alarming to patient and family. Indeed, fear and curiosity occasionally have brought the patient to the doctor, since there may be little associated pain.

Subcutaneous emphysema has been recorded in only a few cases, but since it may be confined to a small area and be ephemeral it is easily overlooked. In almost all cases of interstitial emphysema of the lung, if complicating pneumothorax occurred it occurred on the left side. Often it has been so small that only careful search with proper alignment has produced diagnostic roentgenographic shadows. Right-sided pneumothorax does not appear to be rarer than the left-sided kind, but only rarely has it been found in association with the crunching, bubbling, paper-rustling sound (Hamman's sign) so characteristic of mediastinal emphysema. I found no record of right pneumothorax associated with the distantly heard noise. The most comprehensive discussion of such sounds in interstitial emphysema was given by Greene, who differentiated between two classes of sounds. "The bubbling, crunching, clicking and some of the tapping sounds are due to the heart rubbing against emphysematous blebs in interstitial emphysema of the lung and mediastinum. The knocking and tapping metallic sounds, on the other hand, are due to the heart striking an emphysematous bleb on the median aspect of a partly collapsed left lung or the diaphragm immediately over a gas bubble in the splenic flexure of the colon in the presence of pneumothorax of the left side." The evidence on which these conclusions are based is the fruit of careful study, and, short of detailed human experiments, is the best we are likely to get from observing the effects of accidents and disease.

While the absence of distantly heard noises can only be inferred, the consistency of the record suggests that there is clinical significance in its omission from certain reported cases; for example, in the extensive literature on pneumoperitoneum, such noises are not listed. I have not encountered the phenomenon in reading about or seeing the abdominal catastrophes in which air leaks from the ruptured gut. It is not recorded in reports of interstitial emphysema and left-sided pneumothorax in infants and young children, although Hamman's sign occurs. The assumption is that the noises require the larger heart and fuller sounding board of the adult thorax for their distant propagation. Likewise, the left ventricle and aortic valve rather than the less muscular right ventricle have been associated with heart murmurs heard at a distance.

Diagnosis of such rare conditions is important, because the cause may be a mechanical crisis that can be corrected or eased. Delay or confusion may be fatal. On the other hand, if the causal condition is innocuous, it is well to avoid mistaking it for conditions of ominous import. In order of urgency, the *Mühlengeraüsch* or mill wheel sound of air embolism stands first. Its clinical debut, always unexpected, is associated with an opening by wound, scalpel, or needle by which air gets into veins. Immediate rotation to the left lateral position or the Trendelenburg position, trapping air bubbles above the blood in the right ventricle where they may be aspirated with a needle and syringe, may be lifesaving. Inhalation of 100% oxygen may help.

Rupture of the esophagus, which I have seen produce Hamman's sign, probably can cause loud noises, even without pneumopericardium. Since surgical cure in such a calamity may now be anticipated, the diagnosis of a ruptured gullet should be considered, especially in cases in which a history of extreme vomiting or instrumentation makes the condition probable.

Traumatic pneumothorax, pneumopericardium, and pneumomediastinum with the connotation of crushed ribs or penetration by a missile or foreign body, obviously urgently require treatment. The attending noise may indicate the extent of damage, which otherwise is not apparent. Treatment is that of the underlying condition.

Spontaneous interstitial emphysema of the lung implies pneumothorax and, at times, the hazard of tuberculosis. The noise heard at a distance has not been nearly so ominous as it has seemed to the victim, always amazed and often terrified by such uncanny behavior. Thus, diagnosis usually permits reassurance, since in all recorded cases the patients have survived. It should be kept in mind that tension pneumothorax may lurk under this clinical camouflage. Also, "air lock," the dissection of air through the lung or hilum under enough pressure to impede blood flow, may require more heroic measures, i. e., administration of 100% oxygen or, perhaps, surgical intervention to stop the leak if it can be found. In general, the major role of the physician in these cases is to calm terror by bringing assurance.

Noise from the alimentary canal may rarely lead to the discovery of hiatus hernia with an errant stomach or colon. Loud murmurs, when they have arisen out of the innocuous quiet of the past, especially under some stress or accident, may call to mind the likelihood of ruptured aortic valve or the turning inside out of a syphilitic valve cusp. Giving a better view of prognosis, such diagnostic tours de force escape the odium of academic banality, and who would say that the surgeons will not soon be able to repair or reline stenotic or ruptured valves? Pneumopericardium, apparently of great rarity now, calls for a review of the eroding and destroying processes that permit air to escape into the pericardium from adjoining air-containing structures. Therapeutic pneumopericardium has its own obvious cause, and its insubstantial vogue is past.

SUMMARY

A variety of clinical conditions that may be associated with precordial sounds heard by the unaided ear at a distance from the chest is assembled, compared, and assessed. The commonest causes of such sounds are cardiac murmurs produced by valve rupture or other lesion, often abrupt in onset and a consequence of stress or strain. Next in order of frequency come interstitial mediastinal and pulmonary emphysema, both spontaneous and traumatic. These are followed by spontaneous and traumatic pneumothorax, pneumopericardium, noises the heart produces by striking air-containing gut, air embolus, and a small mysterious miscellany of unexplained sounds. Since the noises considered have diverse sources there is no pathophysiological common denominator to compare with the clinical fact of abnormally great volume of sound. With such differences in cause and, hence, in necessary treatment and prognosis, attention should be directed to the cause, which usually comes to light on careful clinical scrutiny.

If the spirit of Robert Hooke were with us on this occasion, I am sure his interest in natural phenomena would have had some stimulus, and perhaps he would be amused at my answers to his query, "Who knows but that one may discover the works performed in the several offices and shops of a man's body by the sounds they make, and thereby discover what instrument or engine is out of order!" This commemorative tribute I trust Roger Morris would have enjoyed and given his approval in principle, if not in detail of execution. Finally, lest so much aseptic levity make you think the subject is not important, I conclude, in all humility, with a verse of scripture (Jeremiah 17:9): "The heart is deceitful above all things. . . . Who can know it?"

COMBINED ANTIBIOTIC THERAPY IN REFRACTORY URINARY TRACT INFECTIONS

George M. Eisenberg, D.Sc., John D. Alexander Jr., M.D.
and
Harrison F. Flippin, M.D., Philadelphia

Comprehensive in vitro studies by one of us (G. M. E.)[1] on the inhibition of various bacteria by antibiotic combinations indicated that a combination of aureomycin, oxytetracycline (Terramycin), and chloramphenicol possessed antibacterial properties that were not evident when these antibiotics were tested singly in equal concentrations against the same organisms. The present study, part of a more extensive project to be reported later, was undertaken to test this combination clinically. In this report, major emphasis will be placed on our experiences in the treatment of selected patients with refractory urinary tract infections. In addition, attention will be directed to the significance of certain factors, which became manifest only after the study had progressed for a time and which we now believe are fundamental to proper clinical evaluation of any antibacterial agent intended for use in this type of infection.

MATERIALS AND METHODS

The antibiotic combination, hereafter referred to as AOC, consisted of pure crystalline aureomycin hydrochloride, oxytetracycline hydrochloride, and chloramphenicol combined in equal proportions on a weight basis. It was dispensed in 0.5 gm. amounts in gelatin capsules. Administration was by the oral route, 2 to 3 gm. daily in divided doses, the larger dose being employed where in vitro tests suggested moderate resistance of organisms. While most of the patients were treated for only 5 days, a few of those with severer cases received courses of from 7 to 10 days.

The series comprised 36 patients divided into three groups as follows: 1. Group A comprised seven patients studied and treated with AOC by the ward staff on the medical service. Specimens for urine culture were obtained by nursing personnel and examined by procedure 1 (described below). 2. Group B was composed of 15 patients on the urologic service, studied by us solely to evaluate the reproducibility of urinary flora in specimens collected by nursing personnel. Specimens from this group were examined by procedure 2. 3. Group C was made up of 14 patients initially studied and treated by the ward staff of the medical service but subsequently studied bacteriologically and treated with AOC by us. Specimens for culture were collected by us. In the case of men, the glans penis was first cleansed with sterile cotton moistened with sterile green soap and the patient instructed to void. The urine initially voided was discarded. The latter portion was collected with care being taken to avoid contact between the glans and the specimen bottle. Female patients were draped in bed, or, whenever possible, on an examining table by a nurse. A catheterization tray, containing sterile towels, metal catheter, specimen bottles, and solution cups, was placed conveniently at hand. After the patient was draped with the sterile towels and the vulva cleansed with sterile cotton moistened with green soap, the metal catheter was inserted and the urine collected by an assisting nurse as it issued from the catheter. A similar technique was employed in catheterizing men. The specimens were examined by procedure 2. All materials used in collecting specimens from patients in this group were prepared and sterilized by personnel of the bacteriology department.

Procedure 1.—One-half milliliter of specimen was transferred aseptically to a tube of blood culture medium and incubated overnight at 37 C. Smears were prepared and stained by Gram's method. Appropriate plating and determinative procedures were applied to the isolated organisms. Antibiotic susceptibility tests were made by the modification of the filter paper disk procedure.[2] Susceptibility to AOC was determined by use of disks saturated with a solution of antibiotic combination so as to contain 1.25, 2.0, and 5.0 mcg. of aureomycin, oxytetracycline, and chloramphenicol, respectively.

Procedure 2.—Fifteen milliliters of specimen was placed in a sterile centrifuge tube and sedimented for 15 minutes at 3,000 rpm. Following decantation of the supernate, one portion of the sediment was serially streaked on blood, bromothymol blue lactose, and SS agar plates. A second portion was distributed with a sterile swab on the surface of a blood agar plate to be used for susceptibility tests. Finally, a third portion was used to prepare smears for microscopic examination. Thus, it was possible to determine the morphology of the bacterial flora in the specimen in a minimal interval of time after collection, correlate the morphological types found on culture with those seen on smear, and ascertain the antibiotic susceptibility of the flora, all within a period of 18 to 24 hours. Thus, if it was desired to check on the constancy of the bacterial flora, it could be done on duplicate specimens within a 36 to 48 hour period.

RESULTS AND COMMENT

Initial Clinical Trial of AOC.—For this purpose, the seven patients in group A were utilized. Tables 1 and 2 present the data pertinent to diagnosis, renal function,

---

Because of lack of space, the tables have been omitted from THE JOURNAL and will appear in the authors' reprints.

J. M. O'Loughlin assisted in the bacteriological studies, and the chiefs of the Medical and Urologic Services granted permission to study their patients.

From the Departments of Laboratories and Medicine, Philadelphia General Hospital, and the Section of Infectious Diseases, Hospital of the University of Pennsylvania.

The oxytetracycline (Terramycin) used in this study was supplied by Chas. Pfizer & Co., Inc., Brooklyn; the chloramphenicol by Parke, Davis & Company, Detroit; and the aureomycin by Lederle Laboratories Division, American Cyanamid Company, New York.

[1] Eisenberg, G. M., and O'Loughlin, J. M.: Bacterial Susceptibility to Antibiotics: III. In Vitro Studies of Antibiotic Combinations; IV. Comparative Activity of a Selected Combination Versus the Individual Components, to be published.

[2] Eisenberg, G. M., and Wagner, B. M.: Bacterial Susceptibility to Antibiotics: II. Determination by Means of a Standardized Routine Procedure Having Clinical Significance, Am. J. M. Sc. 223: 600-606, 1952.

therapy, bacteriology, and results in each of the cases. When an attempt is made to evaluate this data, it is immediately apparent that unequivocal conclusions regarding the effectiveness of the AOC combination cannot be drawn in each of these cases. The reason for this becomes obvious when consideration is given to the bacteria present before and after treatment in relation to the time of institution of the therapy. For example, in case 3 the urine culture before treatment with sulfisoxazole (Gantrisin) showed Pseudomonas aeruginosa and enterococcus. During sulfisoxazole therapy coliform and Proteus organisms were found, while on conclusion of this therapy, coliform, Proteus, and enterococcus organisms were found. On bacterial grounds, it might be concluded that sulfisoxazole treatment had successfully eradicated the Pseudomonas organisms, temporarily eliminated the enterococcus, and induced the appearance of the coliforms. Excluding, at present, the possibility of contamination, such variation in flora might be explicable on the basis of observation by others,[3] that after antibiotic therapy variations in flora are to be expected. A period of four days intervened between the post-sulfisoxazole culture and the start of treatment with AOC, during which time no specimens were collected. The post-AOC culture showed "no growth." There is, thus, a great temptation to claim that the AOC therapy had successfully eradicated the organisms surviving the sulfisoxazole therapy. This conclusion might be justified, provided that the possibilities of contamination were eliminated beyond reasonable doubt. That such an assumption can be frequently unjustified is apparent from consideration of table 3. This shows the variation in flora found in consecutive urine specimens collected at 24 hour intervals from 18 patients (group B) on the urologic service who were not receiving treatment. In 11 of the 15 cases (74%) it was not possible to demonstrate the same urinary bacteriology in two consecutive specimens taken within a 24 hour period. (These patients did not have urethral manipulation or antibiotic therapy.) While the remaining four patients yielded a reproducible flora under the same conditions, one of these (case 21) showed a variation in the third and fourth specimens taken five days later. It seems very unlikely that such an intrinsic urinary flora variation would exist in patients with a stable homeostasis unmodified by internal drug therapy or external urethral manipulation, and, while this possibility has not been entirely eliminated, it seems probable that Barnard and his associates [4] are correct in their view that under these conditions the urinary flora would be expected to remain constant. Any variation observed would most likely be attributable to contamination at the time of obtaining the specimen. It would then seem reasonable to question the significance of the findings on a single urine specimen. If there is doubt in this connection, it is only logical that there should be difficulty in evaluating the effect of a therapeutic agent prescribed in such a case. As an illustration, attention is directed to case 5 (table 1). A single culture taken two days prior to AOC therapy revealed Escherichia coli and enterococcus. A culture taken one day after therapy showed "no growth." Again, there is the temptation to ascribe what appears to be successful eradication of the organisms to the AOC therapy, but this is not completely justified in view of the experiences with variations in the 24 hour flora seen in the cases in table 2. We are forced to conclude that a reliable, unprejudiced evaluation of antibiotic therapy of urinary tract infections depends on unequivocal establishment of the identity of the infecting flora. In our experience, this can be accomplished only through the adoption of the best available techniques, both in the collection and examination of the specimens and by the taking and examining of multiple pretherapy specimens.

Second Clinical Trial of AOC.—With this basic principle in mind, AOC was used to treat the 14 patients in group C. Table 4 shows the data pertinent to diagnosis and renal function in these cases. Table 5 shows that the first five cases, each showing a single organism susceptible in vitro to AOC, cleared of bacilluria, pyuria, and fever. This was accomplished in four cases, with a total of 10 gm. of the combination over a five day period; one patient received 14 gm. in a seven day course. In two of the cases, no antibacterial therapy preceded the AOC; the other three patients had received penicillin (crystalline and/or procaine), streptomycin, sulfisoxazole, or sulfadiazine, at one time or another during the period preceding AOC therapy.

In the second group of four cases (table 6), each showing a single organism susceptible in vitro to AOC, the bacteria found before AOC were eliminated only to be replaced, after cessation of this therapy, by generically dissimilar organisms; however, pyuria and fever where present were also eliminated. The nature and distribution of this post-AOC flora was as follows: 1. Micrococcus species only, two cases each treated with 2 gm. of AOC daily for five days. 2. Proteus species only, one case of Salmonella choleraesuis bacilluria treated with 20 gm. of AOC in a 10 day period. There was evidence in this case that the finding of Proteus micro-organisms was associated with traumatic cystitis, probably resulting from excessive urethral manipulation. 3. Micrococcus and Proteus species, one case treated with 3 gm. of AOC daily for five days.

In all of these cases, no antibacterial therapy preceded the AOC combination. Cases 32 and 33, shown in table 7, are characterized by the fact that in both the infecting organism isolated prior to AOC therapy was temporarily eliminated by it but recurred shortly after its cessation. Both patients had received penicillin prior to AOC, the patient in case 32 receiving almost 29 million units in an 11 day period, while the one in case 33 was given almost 10 million units in 12 days, for 10 of which 33 gm. of sulfisoxazole was given additionally. The failure of 15 gm. of AOC to permanently clear the Pseudomonas from the urine in case 32 may have been due to the fact that this organism was found to be moderately resistant to an AOC concentration equivalent to that which might have been expected on a 3 gm. per day, five day dosage schedule. It would have been interesting to determine whether a second, more prolonged course of AOC would have produced a more permanent bacteriological remission. This could not be attempted because of the patient's desire to return home. The bacteriological relapse seen in case 32, despite susceptibility of the organism, is explicable on the basis of anatomic obstruction (stricture) and the short therapeutic course, 8 gm. in four days.

---

[3] Rhoads, P. S.; Billings, C. E., and O'Conor, V. J.: Antibacterial Management of Urinary Tract Infections, J. A. M. A. **148**: 165-170 (Jan. 19) 1952. Yow, E. M.: Development of Proteus and Pseudomonas Infections During Antibiotic Therapy, ibid. **149**: 1184-1188 (July 26) 1952

[4] Barnard, D. M.; Story, R. D., and Root, H. F.: Urinary Tract Infections in Diabetic Women, New England J. Med. **248**: 136-141, 1953.

The final group of three patients (cases 34, 35, and 36) are characterized by urinary tract infections caused by multiple, mixed bacteria, of which at least one member was found to be resistant to AOC in vitro. In spite of this, these patients were treated with AOC for two reasons: 1. All other therapies employed had failed to produce the desired response. 2. There was a possibility that through the elimination of the AOC-susceptible members the remaining flora might likewise disappear as a result of distortion in the microbiological balance. That neither of these ends was accomplished is evident from the results. In case 34 the susceptible Klebsiella micro-organisms were eliminated, only to be replaced by micrococci; resistant Proteus persisted. In case 35 AOC therapy eliminated the susceptible Pseudomonas and had no effect on the insensitive Proteus and paracolon microorganisms. In passing, it is well to point out that these same organisms were not eliminated by a three day subsequent course of streptomycin. In both of these cases the organisms eliminated by the AOC therapy had failed to be removed by 9 million units of penicillin (case 34) and 26 gm. of aureomycin (case 35). Far advanced renal functional impairment may have been a contributory factor in this case. The therapeutic failure of AOC in case 36 can be ascribed to the age, general debilitation, and diminished renal blood flow, secondary to congestive failure. Similar therapeutic failure was experienced following courses of combinations of procaine penicillin sulfisoxazole and sulfadiazine-streptomycin.

CONCLUSIONS

In summarizing our impression of the merit of the AOC combination, we acknowledge that follow-up examinations are essential for the determination of permanency of cure in these cases. In this respect, serious limitations are imposed when dealing with patients usually seen in a large municipal hospital for the indigent. In spite of the comparative brevity of the follow-up interval in our cases, we nonetheless feel that certain conclusions can be justifiably made.

In five patients there was complete disappearance of all bacteriological and clinical evidence of the urinary tract infection, which had been refractory to previous medication. In four patients there was complete disappearance of all clinical evidence of urinary tract infection. In these cases the responsible pathogen was eliminated only to be replaced by other organisms, the pathogenicity of which is doubtful in view of the improvement in clinical status and in collateral urinary studies. In two patients there was complete disappearance of clinical evidence of disease but only temporary removal of the offending pathogen. In three patients it was not possible to gage clinical effectiveness because of the lack of characteristic signs and symptoms before therapy. In two of these, with mixed pathogens, the susceptible organisms were eliminated. The third was a therapeutic failure, age and general debilitation contributing to the result. Toxic manifestations, such as nausea, vomiting, and diarrhea were not apparent in the doses used.

AOC combination was effective against such organisms as Klebsiella pneumonia type A, other Klebsiella species, coli-aerogenes, Salmonella choleraesuis, enterococcus, Pseudomonas aeruginosa, and Micrococcus pyogenes var. aureus. The appearance of bacterial opportunists, Micrococcus species in our cases, is not peculiar to AOC therapy. This phenomenon, involving other organisms, has been observed frequently following use of other antibiotics.[5]

SUMMARY

The results of treatment of refractory urinary tract infections with a combination of aureomycin, oxytetracycline (Terramycin), and chloramphenicol (AOC) are presented. While the number of cases treated under controlled conditions that permit unequivocal evaluation of the therapy was small and the follow-up period of short duration, results suggest that this combination has merit and is worthy of additional clinical study. Evidence is presented to demonstrate the desirability of multiple pretherapy cultures in order to permit objective evaluation of antimicrobic therapy.

255 S. 17th St. (Dr. Flippin).

[5] Christie, R. V., and Garrod, L. P.: A Review of the Work of a Penicillin Therapeutic Research Unit, Brit. M. J. **1**: 513-514, 1944. Bacterial Versatility, editorial, Ann. Int. Med. **36**: 196-202, 1952. Finland, M.: The Present Status of Antibiotics in Bacterial Infections, Bull. New York Acad. Med. **27**: 199-220, 1951. Miller, C. P.: New Problems in the Treatment of Infectious Diseases, Ann. Int. Med. **35**: 763-770, 1951.

Subphrenic Infections.—In subphrenic infections the safety and recovery of the patient depends to a great extent on the correct diagnosis being made. It can usually be diagnosed if the possibility of its existence is kept in mind. In any patient with an unexplained fever, and especially following abdominal suppuration, the likelihood of subphrenic infection should be considered. . . . Subphrenic infection results in a fever of the swinging type and general toxic signs and symptoms which may result in rapid deterioration in the patient's general condition. The patient may complain of pain or discomfort in the upper abdomen or over the lower ribs posteriorly. Tenderness on pressure may be present but its absence by no means excludes the infection. As a rule the tenderness is in relation to the 12th rib posteriorly, or below the costal margins in anterior space infections. The most useful and constant physical sign is some limitation of movement, on respiration, of the lower part of the chest on the affected side. This is usually most easily detected from behind and is due to limitation of diaphragmatic movement on the affected side. Apparent increase in the liver dullness may be noticed. There may be signs of a basal pleural effusion, usually of a sympathetic nature, on the affected side or of basal lobular pulmonary atelectasis. The white blood count, not unnaturally, shows a polymorpho-nuclear leucocytosis. The most useful aid to diagnosis is the use of x-rays, and examination under the fluorescent screen is usually more valuable than by means of films. The most constant x-ray finding is that the diaphragm is raised on the affected side and that the range of movement on respiration is diminished compared with the normal side. It may be possible to see an accumulation of gas in the upper part of the subphrenic abscess with a horizontal fluid level below it, but this is not nearly so common as writers in the past have tended to suggest. The gas is usually due to the fact that the subphrenic abscess has communicated with a hollow viscus, such as in the case of perforated peptic ulceration, rather than to the presence of gas-forming organisms within the abscess.—A. B. Birt, M.D., Subphrenic Infection, *Postgraduate Medical Journal,* May, 1953.

FLUID AND ELECTROLYTE DISTURBANCES IN PROSTATISM

Jack Lapides, M.D., Ann Arbor, Mich.

During the past decade or two great strides have been taken in reducing the morbidity and mortality associated with the treatment of prostatism. This progress has been attributed to earlier diagnosis, improved surgical techniques, introduction of modern antibiotic and chemotherapeutic agents, liberal use of whole blood, and, more recently, employment of fluid and electrolyte repair solutions. Since metabolic disorders are relatively frequent in the patient with urinary retention, it is apparent that fluid and electrolyte imbalances are common and important problems. In order to treat these disturbances rationally, one must have a knowledge of the role played by the kidney in the pathogenesis of the electrolyte disorders, as well as a comprehension of its clinical and laboratory manifestations. In this discussion an attempt will be made to indicate the causes of the electrolyte disorders, the types of imbalances most frequently encountered, and the rationale for the use of particular repair solutions.

EFFECT OF BACK PRESSURE ON RENAL FUNCTION AND STRUCTURE

Complete or partial obstruction of the lower urinary tract by an enlarged prostate results in urinary retention. The accumulation of urine in the bladder raises the intravesical pressure, which in turn leads to an increase in intraureteral and intrapelvic pressures. The increased pressure is reflected up the infundibula, calices, and tubules of the nephrons. Since effective glomerular filtration pressure is the difference between the intravascular hydrostatic pressure on the one hand and the sum of the osmotic pressure of the plasma proteins and the intrarenal tissue pressure on the other,[1] it will be observed that the increase in intrarenal tissue pressure produced by the urinary retention will result in decreased glomerular filtration (fig. 1). Glomerular filtration will be impaired further because of decreased blood flow due to compression of the blood vessels by the increased intrarenal tissue pressure.[2] Tubular function will be disturbed also [3] because of a decrease in the peritubular capillary blood flow, which is due to compression of the vessels by increased intrarenal pressure.

If the urinary retention is of short duration, it is probable that no structural changes will occur; however, prolonged lower urinary tract obstruction will result initially in anemic and pressure atrophy of the tubules. Later, the glomeruli will be destroyed so that the kidneys in the end stage become connective tissue shells.[4] It has been demonstrated experimentally in animals [4] that removal of the back pressure will result in structural repair and restoration of function, the degree being dependent on the period of obstruction. In man, following drainage of the bladder, improvement has been observed to take place in both glomerular and tubular function [5]; the function of the tubules, however, appears to recover to a greater extent. The period of time necessary for maximal improvement may be one to two months in some instances.

ELECTROLYTE DISORDERS

Mechanism.—In the healthy person normal renal function serves to maintain a relatively constant environment for the cells of the body so that they can carry out their appropriate activities in a normal manner. Impaired kidney function will lead to aberrations in the chemical structure of the plasma, the interstitial fluid and the intracellular fluids, with resultant serious disturbances in cellular functions. These cellular dysfunctions then manifest themselves by such clinical signs and symptoms as nausea, vomiting, anorexia, ease of fatigue, and anemia.[6]

Normally the kidneys help to maintain homeostasis by "screening the blood plasma" continuously, i.e., the renal nephron deletes the blood plasma of substances that are in too great a concentration and attempts to retain most of any material that is approaching subnormal levels. For example, the kidneys tend to retain most of the glucose, sodium, chloride, bicarbonate, and water that is filtered but seek to excrete the larger portion of sulfates, phosphates, urea, creatinine, and uric acid. It is apparent that the waste products of protein catabolism (sulfates, phosphates, and nonprotein nitrogen) are excreted while the substances necessary for cellular building and activity are retained. Other considerations that govern the kidneys' activities are the necessity for maintaining a blood pH of 7.4 and a plasma volume of approximately 3,000 cc. Before discussion of the types of electrolyte disturbances encountered in urinary retention, it would be well to emphasize that more than 60% of the patients seen with prostatism do not have fluid and electrolyte abnormalities.[7]

Group 1.—The first group to be considered includes patients who have had urinary retention for a relatively short period of time and in whom little or no renal structural damage has occurred. In accordance with the mechanism described previously, these patients will have diminished glomerular filtration because of back pressure due to urinary retention. Impairment of glomerular filtration will lead to retention of all substances in the body; however, only those materials that are not needed by the body and are destined for excretion, namely, sulfates,

---

From the Department of Surgery, University of Michigan Medical School.

Read at the Sixth Clinical Session of the American Medical Association, Denver, Dec. 4, 1952.

[1] Smith, H. W.; Chasis, H.; Goldring, W., and Ranges, H. A.: Glomerular Dynamics in Normal Human Kidney, J. Clin. Investigation 19: 751-764, 1940.

[2] Levy, S. E.; Mason, M. F.; Harrison, T. R., and Blalock, A.: Effects of Ureteral Occlusion on Blood Flow and Oxygen Consumption of Kidneys of Unanesthetized Dogs, Surgery 1: 238-242, 1937.

[3] Pilcher, F., Jr.; Bollman, J. L., and Mann, F. C.: Effect of Increased Intra-Ureteral Pressure on Renal Function, J. Urol. 38: 202-211, 1937.

[4] Hinman, F.: Pathogenesis of Hydronephrosis, Surg., Gynec. & Obst. 58: 356-376, 1934.

[5] Lich, R., Jr.: Renal Dysfunction in Prostatism, Surg., Gynec. & Obst. 74: 475-478, 1942.

[6] Bradley, S. E.: Medical Progress: Biochemical Abnormalities During Renal Insufficiency, New England J. Med. 235: 755-791, 1946.

[7] Kahle, P. J., and Getzoff, P. L.: Evaluation of Preoperative Factors in Prostatic Surgery: A Review of 404 Consecutive Cases, J. Urol. 61: 775-780, 1949.

phosphates, and nonprotein nitrogen, accumulate rapidly in the body; the nonprotein nitrogen level is the first to become elevated. Thus in the severest case in this group there might be a blood nonprotein nitrogen level of 70 to 80 mg. per 100 cc., a normal plasma protein level, normal values for sodium, potassium, and calcium, slightly elevated phosphorus, sulfate, and organic acid levels, and a slightly decreased plasma bicarbonate level (fig. 2).

The patients placed in group 1 usually do not have such symptoms and signs as nausea, vomiting, and anemia. They are dehydrated occasionally, because many persons believe that bladder distension and frequency of urination will be decreased if fluid intake is decreased.

Group 2.—The second group to be discussed includes patients who have had prolonged urinary retention and whose kidneys have been damaged structurally as well as functionally. Many of these patients have symptoms of nausea, vomiting, anorexia, and ease of fatigue. Some will be agitated and disoriented while others may be stuporous. Hyperpnea and dyspnea may be present. They will often have signs of dehydration or extracellular fluid volume deficiency.

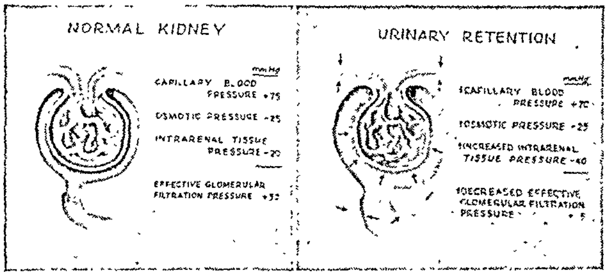

NORMAL KIDNEY
mm Hg
CAPILLARY BLOOD PRESSURE +75
OSMOTIC PRESSURE -25
INTRARENAL TISSUE PRESSURE -20
EFFECTIVE GLOMERULAR FILTRATION PRESSURE +32
URINARY RETENTION
mm Hg
CAPILLARY BLOOD PRESSURE +70
OSMOTIC PRESSURE -25
INCREASED INTRARENAL TISSUE PRESSURE -40
DECREASED EFFECTIVE GLOMERULAR FILTRATION PRESSURE +5

Fig. 1.—Comparison of normal kidney and kidney in urinary retention, showing how the increase in intrarenal tissue pressure in urinary retention results in decreased glomerular filtration.

Unfortunately, there is no one electrolyte profile that is typical of this group. This is in accordance with the findings of Peters and associates,[8] who found no constant ionic plasma pattern in diseased kidneys of various types. One can state, however, that in this second group the plasma bicarbonate level is always below normal; phosphate, sulfate, and frequently organic acid levels are elevated to above normal; and the nonprotein nitrogen value is always increased. The plasma protein sodium, total base, and calcium levels may be normal or decreased. Potassium and chloride values may be elevated, normal, or decreased. It will be observed readily, therefore, that correction of fluid and electrolyte imbalances in this group of patients must be individualized.

It has been assumed arbitrarily that after appropriate treatment the two groups that have just been discussed will have normal electrolyte patterns and will be able to undergo definitive treatment, namely, prostatectomy. There are some patients who do not fall into the previous two categories, since they will never come to operation because of far-advanced renal insufficiency. These patients will demonstrate electrolyte and fluid disturbances similar to those of the second group but, unlike the second group, will show little improvement with therapy.

THERAPY

Drainage.—Since back pressure due to urinary retention is the chief cause of renal impairment in prostatism, it is obvious that prompt relief of the urinary retention must be obtained. Bladder drainage will not only halt further renal deterioration but will result in considerable improvement in kidney function and structure.[9] Urethral catheter drainage is quite adequate for all of the patients in group 1 and for the mild cases in group 2. Suprapubic cystostomy, however, is the appropriate type of urinary drainage for the severe cases in group 2 and for all of the patients in group 3, since prolonged catheter drainage will be necessary for these patients before definitive surgery can be contemplated. The incidence of urethritis, epididymitis, and acute pyelonephritis is much less with suprapubic drainage than with urethral catheter drainage. Acute pyelonephritis superimposed on an already impaired kidney is often enough insult to cause death.

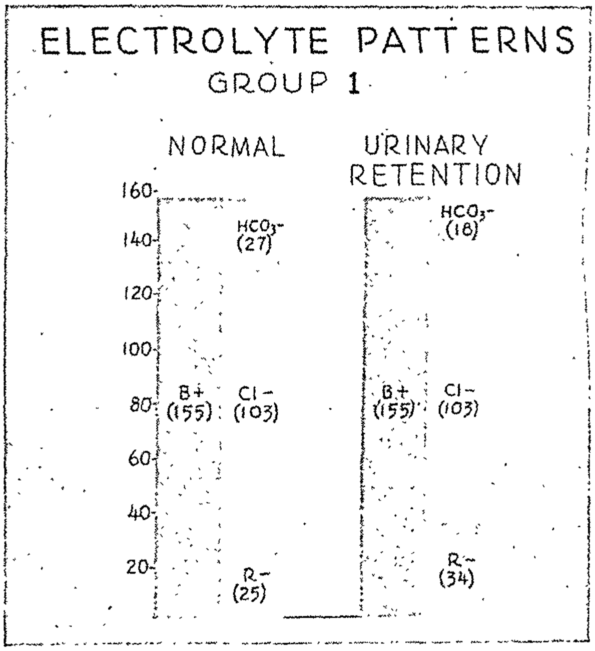


Fig. 2.—Electrolyte patterns in normal persons and in patients who have had urinary retention for a relatively short period of time, with little or no renal structural damage (group 1).

Restoration of Chemical Balance.—In addition to urinary drainage, adjustment of the ionic pattern and fluid volumes of the vascular, interstitial, and intracellular compartments to a normal state is necessary. This requirement is apparent when it is realized that the patient's symptoms are due to abnormal cellular function, which in turn is caused by aberrations in electrolytes and fluids.

In estimating the type and quantity of solution to be used, one must be guided by both laboratory and clinical data. Since most hospitals have limited laboratory facilities, determination of the plasma bicarbonate, chloride, calcium, phosphorus, and nonprotein nitrogen levels will usually suffice as the basic laboratory data. Evaluation of the state of the extracellular fluid volume is based to a great extent on clinical signs.[10] A marked deficit in extracellular fluid volume is characterized by (1) apathy, (2) anorexia, (3) illeus, (4) orthostatic hypotension, (5) tachycardia, (6) softening, shrinking, and longitudinal wrinkling of the tongue, (7) enophthalmos, (8) softness of muscles, and (9) below normal temperature.

---

[8] Peters, J. P.; Wakeman, A. M.; Eisenman, A. J., and Lee, C.: Total Acid-Base Equilibrium of Plasma in Health and Disease: X. The Acidosis of Nephritis, J. Clin. Investigation 6: 517-549, 1929.

[9] Hinman.[4] Lich.[5]

[10] Moyer, C. A.: Fluid Balance: A Clinical Manual, Chicago, The Year Book Publisher, Inc., 1952, p. 68.

A patient may be markedly dehydrated by loss of fluid without necessarily losing electrolytes. In this instance the patient will show thirst, dry mucous membranes, red swollen tongue, flushed skin, fever, tachycardia, and hypotension in addition to softening of the muscles, enophthalmos, and sticky skin. Dehydration of the types just described are the ones most commonly present in the patient with prostatic disease when he first presents himself to the physician.

Treatment of the patient who has had urinary retention for a short period of time (group 1) is a rather simple matter. His blood chemistry studies will indicate elevated nonprotein nitrogen, slightly decreased plasma bicarbonate, elevated plasma chloride, and slightly increased phosphorus levels. Clinical examination will demonstrate dehydration, with an increase in osmolar concentration of electrolytes or, more simply, loss of extracellular fluid without loss of electrolytes, thus resulting in an increased concentration of the electrolytes in the blood plasma and interstitial fluid. This type of dehydration takes place when the patient in urinary retention does not drink or eat. He may have dry sticky mucous membranes, a swollen tongue, flushed skin, fever, and tachycardia. Therapy consists of urethral catheter drainage and forcing fluids if the patient is not nauseated. If the patient is nauseated, approximately 3,000 cc. of 5% glucose in water given intravenously over a period of four to five hours will satisfy the initial 24 hour requirement for fluids. Solutions containing electrolytes are not indicated, since an increased osmolar concentration of electrolytes is already present; in addition, the metabolic acidosis is mild and will be corrected as soon as glomerular filtration is increased. The therapy advocated is aimed specifically at increasing glomerular filtration, in that the back pressure is removed by bladder drainage and the plasma volume is increased by the glucose solution. In addition, the glucose itself is of value, since it promotes diuresis as well as spares the further breakdown of body protein, the end products of which have been partial contributors to the azotemia and acidosis. Most of the patients will be taking fluids and food orally by the second day so that further parenteral therapy may not be necessary. The 24 hour urinary output should be maintained at a minimum of 2,000 cc. If it falls below the minimum, oral fluid intake should be supplemented with 1 to 2 liters of 5% glucose in water parenterally. With this therapy the patient should be ready for operation within three days.

The patients who have been in partial or complete urinary retention for a prolonged period of time present a more difficult problem in treatment. Because of longstanding azotemia and acidosis, they are usually malnourished, dehydrated, anemic, and in poor general physical condition. Blood chemistry studies in a typical case may reveal a nonprotein nitrogen level of 200 mg. per 100 cc., plasma bicarbonate level of 15 mEq. per liter, plasma chloride level of 95 mEq. per liter, and serum calcium level of 4 mEq. per liter. The serum potassium levels in these patients are frequently above normal before urinary drainage and fluid therapy, although there may actually be a decreased concentration of potassium intracellularly. Physical examination of the patient may disclose evidences of dehydration and uncompensated metabolic acidosis, namely, hyperpnea and dyspnea.

After the history has been taken, the patient examined, and emergency blood chemistry studies accomplished, therapy is indicated. If the patient has an inlying urethral catheter when first seen, suprapubic cystostomy is postponed for several days. If the patient has not been catheterized previously, then he is subjected immediately to a suprapubic cystostomy under local anesthesia. Fluid and electrolyte therapy is started as soon as possible.

Analysis of the hypothetical case described reveals that the patient has (1) uncompensated metabolic acidosis, (2) extracellular fluid deficit or dehydration, and (3) probable normal osmolar concentration of electrolytes. Normally the sum of plasma chlorides (103 mEq.) and plasma bicarbonate (27 mEq.) should equal 130 mEq. per liter. In the case described the chlorides (95 mEq.) and bicarbonate (15 mEq.) totaled only 110 mEq. per liter. It would seem then that the osmolar concentration of electrolytes is less than normal. It must be remembered, however, that in prostatism with urinary retention the organic and inorganic acids accumulate in the extracellular fluid, combine with the available sodium, and thus cause a decrease in plasma bicarbonate (fig. 3). Thus the osmolar concentration of sodium may still be within normal limits. Occasionally a patient is found to have a decreased plasma concentration of electrolytes, as illustrated in figure 3.

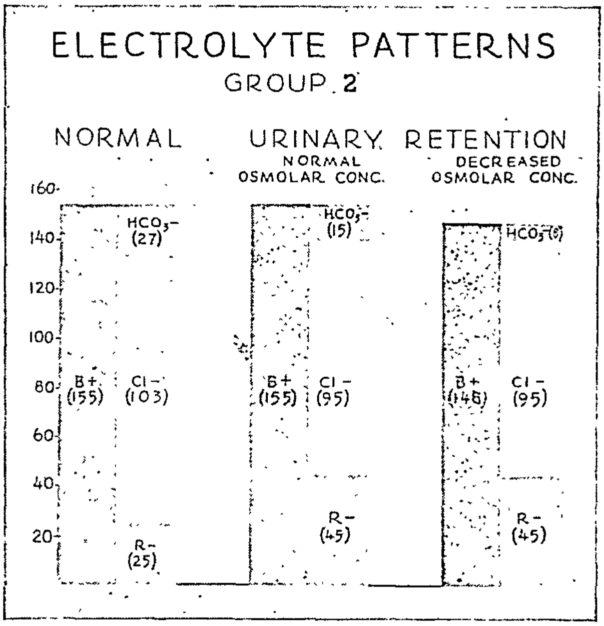


Fig. 3.—Electrolyte patterns in normal persons and in persons who have had prolonged urinary retention, with resultant structural as well as functional damage (group 2).

The solutions to be selected, then, should correct the acidosis, bring the extracellular fluid volume up to normal, inhibit further tissue breakdown, and promote diuresis. A liter of 1/6 molar sodium lactate is usually enough to compensate the metabolic acidosis so that the hyperpnea disappears. When sodium lactate is administered to a patient with hypocalcemia and acidosis, the patient should be observed closely for signs of tetany. If he shows such signs as carpopedal spasm or positive Chvostek's sign, then 10% calcium gluconate should be administered intravenously until the signs disappear.

The liter of sodium lactate should then be followed by 2 liters of a mixture containing one part of 1/6 molar sodium lactate and three parts of isotonic sodium chloride solution. This mixture closely resembles interstitial fluid and will serve to build up the extracellular fluid volume as well as to aid in correcting the acidosis.

Two liters of 5 or 10% glucose in water should then be given to provide for insensible loss of water, urinary water, diuresis, and sparing of protein catabolism as well as prevention of starvation ketosis. In most instances the fluids mentioned can be given intravenously at a rate of about 500 cc. per hour. If necessary, any isotonic electrolyte solution can be given subcutaneously or intramuscularly.

Many patients with decreased plasma bicarbonate levels do not have hyperpnea or dyspnea, i.e., their acidosis is compensated. In these cases it is better to correct the acidosis with a mixture of three parts isotonic sodium chloride solution and one part 1/6 molar or isotonic sodium lactate solution.[11] The serum bicarbonate level is restored at a slower rate than with 1/6 molar sodium lactate alone, but the lactate-chloride mixture serves to restore fluid volume deficits in addition to correcting the acidosis. Furthermore, the risk of inducing tetany with hypocalcemia is considerably less with the use of a lactate-chloride mixture.

It should be emphasized that electrolyte solutions are to be utilized primarily for correction of electrolyte distortions, disturbed electrolyte concentrations, and fluid volume deficits. The electrolyte solutions should not be used as a source of water to compensate for loss through the urine, lungs, and skin. Five or 10% glucose in water solution is the ideal fluid for supplying water parenterally. Occasionally, one encounters instances wherein large amounts of glucose solution have been used in an attempt to correct fluid volume deficits associated with decreased plasma electrolyte concentrations. The attempts invariably meet with disaster, since water intoxication is usually produced. The solution first enters the extracellular compartment and causes a marked dilution of the electrolytes present. Because of the hypotonicity that is produced, water will shift from the interstitial fluid into the cells, causing extracellular dehydration and intracellular overhydration. This will result in nausea, vomiting, muscle twitching, salivation, lacrimation, and oliguria.[10]

It cannot be emphasized too strongly that there is no one formula or group of formulas that can be used in determining the type and amount of fluid to be given in a particular case. Constant clinical and chemical evaluation of the patient is the only safe method of determination; however, there are a few generalizations that can be used as a rough guide in parenteral fluid therapy of the prostatic patient with urinary retention.

1. Adequate therapy can be carried out in most of the patients with the use of essentially two solutions. They are a 5 or 10% solution of glucose in water and a mixture of three parts isotonic sodium chloride and one part 1/6 molar sodium lactate solutions.

2. The chloride-lactate mixture is used to correct extracellular fluid volume deficits as well as acidosis. The glucose water solutions serve to provide water for urine and insensible loss of water through skin and lungs.

3. One-sixth molar sodium lactate solution is administered only when a patient demonstrates uncompensated metabolic acidosis characterized by dyspnea and hyperpnea; and it is used only in a quantity sufficient to dissipate the hyperpnea. The remaining compensated acidosis is treated with the chloride-lactate solution.

4. If the patient's glomerular filtration is improving as evidence by decreasing blood nonprotein nitrogen, then potassium therapy is started on the second or third day of parenteral feeding. A total of 4.0 gm. of potassium chloride per day is sufficient to prevent hypokalemia. The potassium can be given in the glucose-water solution in a concentration of 2.0 gm. of potassium chloride per 1,000 cc. of 5% glucose in water solution.

5. Except during the first 48 hours, when a large deficit of electrolyte is being replaced, the usual daily volume of fluids will not exceed 3,500 cc. One liter of the fluids is chloride-lactate mixture and 2.5 liters are glucose-water solution.

Wilson, Reisman, and Moyer [12] have studied a number of patients with chronic urinary retention in whom marked salt and water depletion developed following decompression of the bladder. They found that the depletion was due to marked losses in the urine (as is commonly seen in the recovery phase of acute renal injury). Fortunately, this type of response has been quite rare in our experience. Treatment should consist of replacement of the salt and water losses with lactate-chloride mixture until the kidneys have recovered.

After parenteral administration of fluids is no longer necessary, the patient should be observed carefully for signs of renal tubular insufficiency, which may manifest itself in polyuria, persistent hypochloremia, hyperchloremic acidosis, or hypochloremic acidosis. If the patient has nephritis in which he is losing sodium chloride without acidosis, he should have a daily intake of 2 to 4 gm. of sodium chloride in addition to the usual amount of sodium chloride in his diet. If the base-conservation mechanism of his tubules is not producing ammonium and hydrogen ions, then sodium bicarbonate, 3 to 4 gm. per day, should be prescribed. Both sodium chloride and bicarbonate are indicated if hypochloremic acidosis tends to develop.

The type of patient found in group 2 is not subjected to prostatectomy until the kidneys are able to maintain homeostasis. As stated previously, in some cases cystostomy drainage may be necessary for six weeks before the azotemia and acidosis have completely disappeared.

---

11. Darrow, D. C., and Pratt, E. L.: Fluid Therapy: Relation to Tissue Composition and Expenditure of Water and Electrolyte, report of Council on Foods and Nutrition, J. A. M. A. **143**: 365-373 (May 27), 432-439 (June 3) 1950.

12. Wilson, B.; Reisman, D. D., and Moyer, C. A.: Fluid Balance in Urological Patient: Disturbances in Renal Regulation of Excretion of Water and Sodium Salts Following Decompression of Urinary Bladder, J. Urol. **66**: 805-815, 1951.

The patient can usually be sent home to complete his recovery process once he is well started on oral feedings. If the patient's serum calcium is low and phosphorus high, calcium lactate, vitamin D, aluminum hydroxide gel (Amphojel) and Shohl's solution (containing 98 gm. of sodium citrate and 140 gm. of citric acid per liter of distilled water) can be prescribed. The aluminum hydroxide gel serves to prevent absorption of phosphorus from the intestine and thus will tend to reduce the serum phosphorus. Shohl's solution is used to aid in absorption of calcium lactate from the intestine and also to provide available base to the body.[13]

SUMMARY

Lower urinary tract obstruction by an enlarged prostate often leads to aberrations in the fluid and electrolyte balance of the body. The role of back pressure in the production of the renal dysfunction leading to electrolyte abnormalities is discussed. An outline of the types of electrolyte problems encountered in patients with urinary retention is presented. The various repair solutions utilized in the correction of the electrolyte disturbances and the rationale for their use are indicated.

---

[13] Albright, F., and Reifenstein, E. C., Jr.: The Parathyroid Glands and Metabolic Bone Disease, Baltimore, Williams and Wilkins Company, 1948, p. 234.

FLUID AND ELECTROLYTE BALANCE IN BURNS

Capt. Eric Reiss, Lieut. Jerry A. Stirman, Major Curtis P. Artz, Capt. John H. Davis
and
Col. William H. Amspacher, (MC), U. S. Army

No insult to the body equals a burn in intensity. A severe, untreated burn causes death by initiating incredibly large and rapid shifts of fluids. In burns as well as in other conditions associated with fluid derangements, present day therapy is based on the assumption that optimal care consists of the administration of fluids at the same rate and in the same volume and composition in which they are lost. For instance, the best therapy for a patient who loses 500 cc. of blood during an operation is the administration of the same quantity of blood as rapidly as it is being lost.

During the past 10 years, experimental and clinical data have yielded valuable information concerning the volume and rate of fluid losses in burns. Knowledge concerning the composition of fluid losses in burns remains fragmentary, however, and, to a large extent, conjectural. Treatment is correspondingly imperfect. Despite the progress that has been made in the initial treatment of burns, most patients who have deep burns over more than 50% of the body surface still die. Death in many of these patients is a direct result of fluid and electrolyte shifts. In contrast, less severely burned patients generally respond well to present day treatment.

The purpose of this presentation is (1) to review briefly and critically some facts and speculations concerning the fluid and electrolyte shifts in the severely burned patient and (2) to outline a regimen that has proved valuable in the treatment of a large series of patients.

PHYSIOLOGICAL CONSIDERATIONS

Volume of Fluid Losses.—The volume of fluid lost from the blood and from the interstitial fluid of unburned tissues depends largely on the extent of body surface burned and the depth of the burn. The total surface area involved is best expressed in terms of percentage of body surface and can best be ascertained with sufficient accuracy by the use of the "Rule of Nines." According to this rule, the body is divided into areas representing 9% of the body surface or multiples thereof, as follows: the head 9%; each upper extremity, 9%; each lower extremity, 18%; the anterior trunk, 18%; and the back, 18%. This simple means of rapidly estimating the extent of a burn is extremely valuable and should be committed to memory by every physician.

That the fluid losses (and therefore the fluid requirements) of burned patients are definitely related to the extent of the burn was established beyond doubt by the work of Cope and Moore; their documented experience forms the foundation on which modern treatment is based.[1] The depth of burn as a factor determining fluid losses is equally important but not as well appreciated by the medical profession. Burns injure tissue cells and capillary walls. The intensity of the heat source and the duration of the tissues' exposure to heat determine the depth of burn and the total quantity of tissue damaged in any particular area. Although the true depth of a burn defies clinical diagnosis, it is certain that skin is not the only tissue that is affected by burning. In partial thickness burns (second degree), the epithelium is incompletely destroyed, yet capillary injury extends well into the subcutaneous tissue. Full thickness burns (third degree) can be associated with widespread, deep tissue injury that profoundly influences the fluid needs of the patient. The severity of injury ranges from necrosis in the more superficial structures to less severe damage in tissues that are farther removed from the source of heat. It is well, therefore, to think of a burn as three dimensional trauma rather than as trauma that involves merely the surface. Unfortunately, inspection of a burn frequently yields a misleading impression of the magnitude of fluid losses. The exudate that weeps so copiously from the surface of a recent partial thickness burn is but a small fraction of the total loss: the major loss occurs in the tissues and is concealed from vision until the wound begins to swell a few hours after injury. In full thickness burns, visible exudation is completely absent, and the hard, dry, eschar, which is characteristic of full thick-

---

From the Surgical Research Unit, Brooke Army Hospital.

Read at the Sixth Clinical Session of the American Medical Association, Denver, Dec. 3, 1952.

Owing to lack of space, some of the bibliographic references have been omitted from THE JOURNAL but will be included in the authors' reprints.

[1] Cope, O., and Moore, F. D.: Redistribution of Body Water and Fluid Therapy of Burned Patient, Ann. Surg. 126: 1010, 1947.

ness injury, often prevents swelling. Nevertheless, it is this type of injury with a dry surface that poses the most vexing problems and is in need of more intensive supportive therapy than the profusely oozing partial thickness burn.

Rate of Fluid Losses.—The most rapid loss of fluids occurs in the first few hours after burning. By the sixth to eighth hour, a large portion of the fluid losses has occurred; thereafter, the rate of loss is sharply reduced. When wound edema reaches a maximum in approximately 48 hours, fluid losses into the wound virtually cease. Clinically, the rapid infusion of fluids during the first six to eight hours and the subsequent decline in the rate of fluid administration has proved very effective.

Composition of Fluid Losses.—The problem of the composition of fluid losses bears an important relationship to the nature and location of fluid shifts. An abundance of experimental work has failed so far to elucidate this crucial problem. Only this much is clear from what has already been said about the three dimensional character of the burn wound: burn exudate must be a mixture of heterogeneous fluids. Varying degrees of capillary and tissue damage must result in fluid losses of varying composition.

Proteins: From inspection of blister fluid it might be surmised that burn exudate resembles plasma. With the use of radioactive dyes, Cope and Moore proved that the capillaries in burned areas are abnormally permeable to proteins.[2] In subsequent studies, Cope and associates studied the concentration and partition of proteins in the lymph and plasma of burned dogs.[3] They noted an early increase in the plasma protein concentration and a high albumin-globulin ratio in the lymph. The increasing plasma protein concentration indicated a more rapid loss of water than of proteins, and the high albumin-globulin ratio in the lymph pointed toward the more rapid loss of the smaller albumin molecules than of the larger globulin molecules. This important series of experiments forms the rational basis for the use of colloid solutions in the early treatment of burns.

Electrolytes: Unfortunately, the true composition of burn exudate is reflected neither in lymph nor in blister fluids. A study of lymph may give a clue as to the composition of the interstitial fluid in burned areas, but some evidence has been adduced that shows that the injured tissue cells play an important and active part in the fluid shifts. When Fox burned mice and analyzed the burned as well as unburned tissues, he noted the extrusion of potassium and accumulation of sodium in the burned tissues and the uptake of potassium and release of sodium in the unburned tissues.[4] The loss of sodium into the burned tissues was so great that it could cause hypotonicity of the extracellular fluid, which in turn would result in the shift of large quantities of water into the cells of unburned tissues. If Fox's interpretation of his data is correct, large volumes of fluid could be lost not only at the site of burn but also in uninjured regions away from the area of injury. Indirect support of fluid losses remote from the burn is furnished by the experiments of Scott, who was unable to correlate the volume of fluid that accumulated in the area of injury with the death or survival of experimental animals.[5] The effectiveness of salt solutions in the treatment of burned rodents has been established.[6] Evidence regarding the relative effectiveness of isotonic and hypertonic salt solutions is conflicting. In man, the limits of effectiveness of salt solutions has yet to be defined, but it appears certain that most patients who have burns involving 20 to 25% of the body surface can be adequately treated by the use of salt solutions without colloids.

Red Cells: Red cell destruction occurs to a variable extent after burning. Many red cells that are trapped in the area of burn are directly destroyed by heat. Some escape direct destruction but become more fragile and succumb subsequently (delayed hemolysis).[7] The phenomenon of sludging, which has been described by Brooks, may also contribute to the functional removal of large numbers of red cells from the circulation.[8] The magnitude of red cell lysis is largely dependent on the depth of burn: it is greatest in deep, extensive burns and, for practical purposes, insignificant in partial thickness burns, even in those that extend over large areas of the body surface.

Therapeutic Implications: Because our understanding of the pathological physiology of burns is incomplete, our present treatment of the fluid and electrolyte shifts is not altogether satisfactory. Our competence is greatest in appraising the volume and rate of fluid losses; it is least in appraising their composition.

Plasma proteins are of importance in the maintenance of a normal circulating volume and, since they are lost into the burn tissues, their replacement in some form or another appears necessary. The plasma protein concentration in severely burned patients almost always decreases to 5 gm. per 100 cc. or less, regardless of the quantity of blood and plasma that is given. As long as the injured capillaries permit leakage of colloidal particles into the interstitial spaces of burned tissues, the administration of colloid solutions is probably of only limited value in increasing the circulating volume.

Solutions that contain sodium are certainly required in treatment, but it remains to be conclusively shown whether these solutions are by themselves capable of maintaining the blood volume in extensive, deep burns in man. It is possible that massive infusions of solutions containing sodium result in the mobilization of protein stores from the interstitial spaces of unburned tissues and from other stores and that sufficient protein enters the circulation from these sources to sustain the circulating volume.

Only this much appears certain at this time: Electrolytes, whole blood, and colloids are required in the treatment of severe burns. Selection of fluids as regards their composition and total and relative volumes is influenced by the severity of injury and by the physiological status of the patient.

---

[2] Cope, O., and Moore, F. D.: Study of Capillary Permeability in Experimental Burns and Burn Shock Using Radioactive Dyes in Blood and Lymph, J. Clin. Investigation **23**: 241-257, 1944.

[3] Cope, O.; Graham, J. B.; Moore, F. D., and Ball, M. R.: Nature of Shift of Plasma Protein to Extravascular Space Following Thermal Trauma, Ann. Surg. **128**: 1041, 1948.

[4] Fox, C. L., Jr., and Baer, H.: Redistribution of Potassium Sodium and Water in Burns and Trauma and Its Relation to Phenomena of Shock, Am. J. Physiol. **151**: 155-167, 1947.

[6] Rosenthal, S. M.: Experimental Chemotherapy of Burns and Shock: III. Effects of Systemic Therapy on Early Mortality, Pub. Health Rep. **58**: 513-522, 1943.

TREATMENT

General Considerations.—All of the mechanical and pharmacological means that have been used in an attempt to decrease the abnormal capillary permeability in burned tissues have failed to influence the loss of fluids. In a series of carefully controlled experiments, Rhinelander observed that compression of the burn wound does not appear to limit the total fluid losses but merely to translocate the losses from the burn wound to the surrounding tissues.[9] This negative evidence is of practical importance, since pressure that is applied over the burn wound in an effort to limit extravasation of fluid may cause serious impairment of circulation in the affected part. Although corticotropin and cortisone influence capillary permeability in areas of inflammation, their ineffectiveness in limiting the leakage of proteins from the capillaries of the burned tissues has been demonstrated, experimentally and clinically.[10]

Although the extent and depth of the burn are by far the most important factors determining the fluid requirements, other factors, including the age of the patient and the location of the burn, must also be taken into account in any plan of therapy. In contrast to the experience of others, our limited experience in the treatment of burned children has indicated that they generally respond well to treatment in the early postburn period. Investigators who have had experience in the treatment of elderly patients have stated that those 60 years of age or older have less chance for survival than younger patients.

It is well to define again the limitations imposed by treatment based on our inadequate understanding of fluid shifts: patients who have third degree burns of more than 50% of the body surface rarely survive for more than 10 days, even under the most skillful medical supervision. The principal factor determining survival appears to be the extent of third degree involvement rather than the total area burned.

Replacement Solutions.—A well-cooled solution containing 3 gm. of sodium chloride and 1.5 gm. of sodium bicarbonate per liter can be administered orally and is well tolerated by most patients.[11] This solution contains only 70 mEq. of sodium per liter and is, therefore, hypotonic with respect to this ion. Isotonic electrolyte solutions, orally administered, are unpalatable and poorly tolerated.

Since a 0.9% solution of sodium chloride contains an excessive concentration of electrolytes, particularly chloride, some type of "balanced electrolyte solution" is preferred in the treatment of burns as well as in the treatment of most conditions associated with a deficit of extracellular fluid volume. Lactated Ringer's (Hartmann's) solution is an acceptable solution that contains, in addition to minute amounts of other ions, 130 mEq. of sodium and 109 mEq. of chloride per liter. The high concentration of available bicarbonate in lactated Ringer's solution offsets the tendency towards acidosis that is frequently seen in the early postburn period. If isotonic sodium chloride solution is used exclusively to meet the sodium requirements of an extensively burned patient, low plasma levels of bicarbonate and very high levels of chloride are frequently encountered.

Colloid Solutions.—Plasma, plasma expanders, and blood are the colloid solutions most commonly used in burns. Plasma that is available to the armed forces causes viral hepatitis of the homologous serum type in a high percentage of patients. In our experience, hepatitis occurred in one out of every five patients who had received plasma, and we have recently observed two fatalities from this complication. For this reason, we never use plasma. Experience with dextran, polyvinylpyrrolidone, and the gelatins indicates that the colloid effectiveness of these plasma expanders is equal or superior to that of plasma.

Signs and Symptoms of Fluid Deficiency.—The clinical picture of burns is peculiarly deceptive, for a patient may appear to be in good condition even though disasterous derangements are imminent. Close clinical observation is of the greatest value in judging the adequacy of past treatment and planning for future treatment. Ravenous thirst, vomiting, restlessness, disorientation, mania, and increase in pulse rate, a decrease in blood pressure, collapsed veins, and oliguria are indications that therapy has failed to keep pace with fluid losses. Severely burned patients frequently have abdominal distention, nausea, and vomiting during the first 48 hours. The ingestion of fluids may aggravate vomiting, and this may cause an additional loss of electrolytes via the gastric juice. It is particularly important to interpret restlessness and disorientation as signals for the intensification of therapy and not as indications for the administration of narcotics. Changes in the pulse rate and blood pressure are not altogether reliable, since they may not occur until the patient's condition becomes critical. Although all of the signs and symptoms of deficiency are important, the most valuable single index in determining the adequacy of therapy is the rate of urinary output.

Specific Regimen of Therapy.—In general, burns that involve less than 20% of the body surface in adults require only a minimum of supportive therapy. Colloid solutions are not necessary, and fluid requirements are satisfactorily met by electrolyte solutions given orally and/or intravenously.

In more extensive burns, a 15 to 18 gage metal cannula or plastic tube, firmly secured in a vein, and an indwelling catheter in the bladder are absolutely essential for adequate therapy. Definitive local care must be postponed until the patient's general condition is stabilized. A rapidly applied emergency dressing, whose function is to protect the wound from contamination and to lessen pain, is all that is required. If pain or anxiety is severe, a small dose of a narcotic may be given. If possible, this should be given intravenously, since absorption from subcutaneous deposits is poor in the presence of impending or established circulatory collapse. Not infrequently, several large doses of narcotics are given subcutaneously without effecting pain relief; after reestablishment of good circulation by fluid therapy, simultaneous absorption of several doses of the drug may lead to serious central nervous system depression.

---

[9] Rhinelander, F. W.; Langohr, J. L., and Cope, O.: Explorations into Physiologic Basis for Therapeutic Use of Restrictive Bandages in Thermal Trauma: Experimental Study, Arch. Surg. 59: 1056 (Nov.) 1949.

[10b] Wight, A.; Weisman, P. A.; Rovit, R. L., and Cope, O.: Adrenal Hormones and Increased Capillary Permeability of Burns, A. M. A. Arch. Surg. 65: 309-317 (Aug.) 1952.

[11] Moyer, C. A.: Recent Advances in Chemical Supportive Therapy of Thermal Injury, Texas State J. Med. 45: 635, 1949.

Treatment requirements of an extensively burned patient must be selected for the individual patient against a background of the many variables that have been mentioned. Rules of thumb or formulas cannot be expected to predict accurately the requirements for all patients. Nevertheless, some yardstick for roughly planning fluid therapy during the first 48 hours is useful. For this purpose, a modification of the formula proposed by Evans has proved valuable.[12] The severely burned patient requires, in the first 24 hours, approximately 0.5 cc. of colloid solution and 1.5 cc. of a balanced electrolyte solution per 1/100 of the body surface burned per kilogram of body weight. In addition, adults require 1,000 to 2,000 cc. of either an electrolyte solution or water (figure).

Since the relationship between fluid requirements and percentage of burn is not linear throughout, fluid requirements of burns involving more than 50% of the body surface should be calculated as though only 50% had been burned. Unless this limitation is imposed on the use of the proposed formula, an excessive estimate of fluid requirements is made. In general, adults should not receive more than 10,000 cc. of fluids in the first 24 hours, regardless of the extent of the burn and the body weight. In the second 24 hour period, fluid requirements, qualitatively and quantitatively, are approximately one-half to three-quarters those of the first 24 hours.

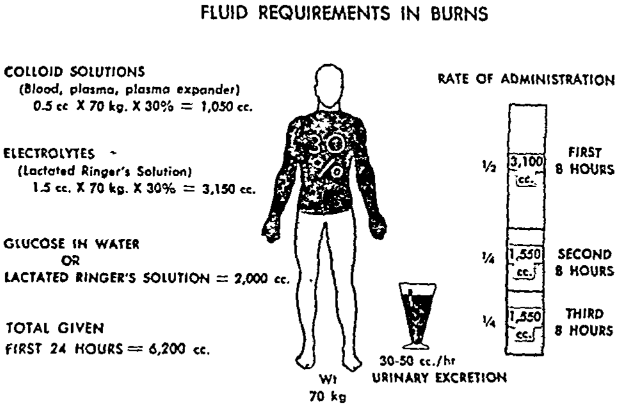

FLUID REQUIREMENTS IN BURNS
COLLOID SOLUTIONS
(Blood, plasma, plasma expander)
0.5 cc X 70 kg. X 30% = 1,050 cc.
ELECTROLYTES
(Lactated Ringer's Solution)
1.5 cc. X 70 kg. X 30% = 3,150 cc.
GLUCOSE IN WATER
OR
LACTATED RINGER'S SOLUTION = 2,000 cc.
TOTAL GIVEN
FIRST 24 HOURS = 6,200 cc.
30 %
Wt
70 kg
30-50 cc./hr
URINARY EXCRETION
RATE OF ADMINISTRATION
½
3,100 cc.
FIRST 8 HOURS
¼
1,550 cc.
SECOND 8 HOURS
¼
1,550 cc.
THIRD 8 HOURS

Illustration of method of estimating fluid and electrolyte requirements for the first 48 hours after injury. Colloid and electrolyte needs are roughly determined by the extent of burn and the size of the patient. Details are given in the text.

If the patient can tolerate fluids given orally, a solution containing sodium bicarbonate and sodium chloride rather than water should be given. Administration of large amounts of water not containing electrolytes, by any route, carries with it the danger of dilution of the extracellular fluid. Dilution results in the shift of large quantities of water into the cells and is reflected clinically as the syndrome of "water intoxication." [11] The more serious the injury, the more jealously must the intake of electrolyte-free water be guarded. For very extensive, deep burns, we propose complete restriction of water intake in the first 24 hours, unless the infusion blood and a balanced electrolyte solution, in proper amounts, fails to sustain an adequate urine flow; only under this condition should free water be given, and then only in small amounts. In the second 24 hour period, less stringent water restriction is required, and thereafter water intake should be encouraged.

Whole blood is rarely required in partial thickness burns. When partial thickness injury extends over more than 30% of the body surface, some colloid in the form of a plasma expander is usually required. Whole blood is indicated in full thickness burns of more than 20% of the body surface. The larger the area of third degree burn and the deeper the burn, the more urgent is the need for blood transfusions. To what extent, if any, high hematocrit readings (hemoconcentration) contraindicate the use of whole blood in deep extensive burns has not been established. Serious red cell deficits and hemoconcentration frequently coexist because water and electrolytes are lost in greater quantity than red cells. Hemoconcentration causes increased blood viscosity.[13] Although a high blood viscosity has not been proved harmful, it appears likely that a high hematocrit does not serve any beneficial purpose. In the presence of a high hematocrit, whole blood should not be used unless large quantities of electrolyte solutions are given simultaneously. Whole blood may be administered when the hematocrit is at a level of 60 or below and decreasing, but it must be remembered that a high increasing hematocrit indicates primarily the need for electrolyte solutions. The need for whole blood is particularly striking in patients who have deep, extensive burns, who show signs of peripheral circulatory collapse, and who, at the same time, have normal or low hematocrit levels and fail to improve when electrolytes are given. If whole blood is not available, it is still possible to treat satisfactorily many deeply and extensively burned patients during the first 48 hours with the use of electrolytes and plasma expanders. The clinical course of these patients is generally less satisfactory than that of patients who are treated with whole blood initially.[14]

To keep pace with the fluid losses, approximately one-half of the fluid requirements of the first 24 hours should be given in the first eight hours, one-quarter in the subsequent eight hours, and one-quarter in the last eight hours. Clinical signs and symptoms and occasional hematocrit determinations influence the volume, composition, and rate of fluid administration. The urine volume should be measured every hour. An hourly output of 30 to 50 cc. of urine is satisfactory. A persistent urine flow of less than 30 cc. per hour is an indication for more rapid administration of fluids. A urine volume of more than 100 cc. per hour, on the other hand, indicates that the rate of fluid administration should be decreased. Although so-called "lower nephron nephrosis" (acute renal insufficiency) has been described after burns, we could not find a single instance of this complication in a series of 500 burn patients, 20 of whom died.[15] Oliguria and anuria in the first 48 hours after burning are nearly always caused by inadequate therapy and respond to intensification of therapy. It must be remembered, however, that in badly burned patients who have not had

---

12. Evans, E. I., and others: Fluid and Electrolyte Requirements in Severe Burns, Ann. Surg. **135**:804-817, 1952.

13. Quinby, W. C., Jr., and Cope, O.: Blood Viscosity and Whole Blood Therapy of Burns, Surgery **32**: 316-325, 1952.

14. Abbott, W. E.; Hirshfield, J. A., and Meyer, F. L.: Metabolic Alterations Following Thermal Burns: V. The Use of Whole Blood and Electrolyte Solution in Treatment of Burned Patients, Ann. Surg. **122**: 678, 1945. Evans, E. I., and Bigger, I. A.: Rationale of Whole Blood Therapy in Severe Burns: Clinical Study, ibid. **122**: 693, 1945.

treatment for many hours, the urine flow may not increase for many hours after institution of therapy. In these patients, fluid restriction in the mistaken belief that acute renal insufficiency exists results in an inexorably fatal outcome.

By the use of the regimen outlined, patients who are so severely burned that their chances for recovery are practically nil may survive for several days. If therapy is to be successful, advantage must be taken of the more or less predictable volume and rate of fluid losses. In this respect, the physician has a therapeutic opportunity that is rarely encountered in other diseases characterized by disturbed water and electrolyte distribution. If judicious treatment is instituted within a few hours after injury, the signs and symptoms of fluid derangement can frequently be prevented.

Fluid therapy after 48 hours is less well defined than it is in the initial period. According to our studies and experience, we must abandon the old concept that diuresis occurs after 48 hours as wound edema is resorbed and that, at the time of diuresis, fluid administration must be drastically reduced lest the circulation be overloaded. Dramatic diuresis was observed when burn patients were given fluids far in excess of the volumes now recommended, but when a regimen such as that proposed by Evans or our modification thereof, is employed the rapid mobilization of fluids is exceptional. If it occurs, it is a reflection of excessive fluid therapy prompted, in most instances, by overestimation of extent and depth of burn. A gradual increase in urinary output is more commonly seen. "Fluid redistribution" may be a better term to describe the changes that occur after 48 hours than "fluid resorption."

Therapy is guided almost exclusively by clinical signs and symptoms. Sufficient quantities of fluid should be given to assure good turgor of the unburned skin, fullness of veins, and a good tongue volume. Surprisingly large amounts of fluid may be required to accomplish this. After 48 hours, the urinary output becomes a totally unreliable sign of the adequacy of therapy, for serious water and salt deficits may develop in the presence of an adequate urine flow. The large quantities of nonprotein nitrogenous products released from the burned tissues (and possibly from other sources) demand excretion in the tubules of the kidney and act as osmotic diuretics.

Potassium excretion is high and subsides slowly over a period of weeks. Since severely burned patients tolerate only a very limited food intake during the first week, it is advisable to give potassium by mouth, beginning on the third or fourth day. Three grams of potassium chloride or, preferably, potassium phosphate in orange juice can be given by mouth three to four times a day until a normal diet is ingested.

Unfortunately, the factors that control fluid redistribution remain obscure. Until the fourth to the sixth postburn day, the serum levels of sodium, potassium, and chlorides usually remain within normal limits. At that time, the serum sodium level commonly decreases to 130 mEq. per liter or below, and we have observed that, concomitantly, the patient's clinical condition often deteriorates, as evidenced by high fever, tachycardia, tachypnea, and mental confusion. Low serum sodium levels are observed in metabolic adjustments to injuries other than burns and in a variety of medical diseases, including congestive heart failure, cirrhosis, and nephrosis. In burns, fluid redistribution sometimes proceeds in a manner reminiscent of these diseases. That a cause and effect relationship exists between the low serum sodium level and the patient's deteriorating clinical state is not necessarily true, but this possibility distinctly exists and must be studied further. Patients who are not too severely burned usually recover from this mysterious syndrome in several days; clinical improvement is not infrequently associated with diuresis of water and sodium. Those who are more seriously burned succumb despite the many heroic measures that have been employed in treatment.

SUMMARY

The complex nature of water and electrolyte shifts after burning is not yet fully understood. Although the volume and rate of fluid losses can be gaged with reasonable accuracy, the exact composition of fluid losses is as yet unknown and imposes serious handicaps in treatment. Fluid and electrolyte redistribution is a gradual process. It is characterized clinically by fever and tachycardia and occurs at approximately the time when the serum sodium level decreases. Burns involving 20% or less of the body surface can be managed satisfactorily with oral administration of electrolyte solutions, supplemented by small quantities of electrolytes, intravenously. In severe burns, a rough guide for therapy is provided by the formula in which 0.5 cc. of colloid and 1.5 cc. of electrolyte per 1/100 of body surface burn per kilogram of body weight and an additional 1,000 to 2,000 cc. of either an electrolyte solution or water are advocated. In the second 24 hour period, one-half to three-quarters of these amounts are usually required to satisfy fluid requirements. After 48 hours, clinical signs and symptoms govern fluid therapy. Because of the high losses of urinary potassium, beginning on the third day, administration of oral potassium solutions is advised.

ADDENDUM

Eight burn patients have died on our service since this paper was submitted for publication. Two of these patients had a clinical course and renal lesions compatible with a diagnosis of lower nephron nephrosis.

Suicide Rate at Record Low.—The suicide rate among industrial policyholders of the Metropolitan Life Insurance Company established an all-time low last year. The rate for 1952, namely 5.6 per 100,000 at ages 1 to 74 years, was 10% less than that in 1951; the previous low of 6.3 per 100,000 was recorded in 1945. . . . With the close of World War II, the suicide rate took an upward turn. The wartime motivations that usually lower the suicide rate were gone; many ex-servicemen experienced difficulties in readjusting to civilian life, and the tempo of industrial activity slackened. It was not possible to forecast then how long the suicide rate might continue upward or how high it would go. There was little comfort in looking back at the experience following World War I, because the upward trend in suicide which began in 1920 continued through the early 1930's. Fortunately, the pattern of the period after World War I has not been repeated in the experience since 1945. The fact that the suicide rate is now at a record low is a good index of the psychological and economic well-being of our people.—Suicide Rate at Record Low, *Statistical Bulletin*, Metropolitan Life Insurance Company, May, 1953.

PRECAUTIONS IN PEDIATRIC IMMUNIZATION PROCEDURES

Louis W. Sauer, M.D., Ph.D., Evanston, Ill.

During the past decade, the simultaneous immunization against diphtheria, tetanus, and pertussis has become quite well established on laboratory and clinical evidence. To retard the elimination of antigen (DTP) from the body and to enhance antitoxin and antibody development, various forms of aluminum have been used as adjuvant. Most private patients are now adequately protected by the customary primary series of three or four monthly doses, and subsequent recall (stimulating or booster) doses. Needless deaths due to pertussis are still occurring, however, in infants and children from families with low incomes and orphanages in congested cities and in rural areas. To reach these children, mass immunization clinics should function at well baby clinics, primary schools, and mobile units. The diverse difficulties encountered in the execution of these immunization procedures are problems due to earlier immunization, febrile reactions, alum cyst, postinoculation encephalopathy, paralytic poliomyelitis of the injected limb, and unfavorable results caused by the technique of mass immunizations. This paper deals with precautions in the solution of these problems.

EARLIER IMMUNIZATION

In 1925, Lovett and Hektoen [1] wrote: "Of all contagious diseases [whooping cough] is the most likely to affect the youngest members of the family; and herein . . . lies its chief danger. Even the tiny baby is not immune; for many cases occur . . . between the ages of one and three years." Kahn,[2] working with animals, made the fundamental discovery that "The capability to develop immunity is possessed to a considerably greater extent by the adult animal than by the young animal, and a given dose of antigen per kilogram of body weight that will produce marked immunity in the former animal may produce but mild immunity in the latter." I found, in 1933, that pertussis vaccine in an isotonic sodium chloride solution (in a total dosage of 80 billion Hemophilus pertussis, divided into three subcutaneous doses) conferred prolonged active immunity to infants after the age of 6 months but failed to protect when administered during the first months of life.[3] Pertussis occurred seven times more frequently in the latter group. Twelve years later, Sako, Treuting, Witt, and Nichamin [4] showed that alum precipitated pertussis vaccine protected most younger infants and prevented deaths due to pertussis when the disease was contracted later. Recently McComb and Trafton [5] reported that aluminum phosphate as adjuvant in DTP produced good protection and minimal systemic and local reactions.

The American Academy of Pediatrics [6] Committee on Immunization and Therapeutic Procedures recommends three monthly doses of slow absorbing (alum containing) DTP, starting at the age of 3 months, and the first recall dose one year after completion of the primary series. When begun before the third month of life, four monthly doses are advised. Some health departments, including those of Chicago and Evanston, and some physicians prefer to administer four monthly doses when the primary series is started before the 6th month. Three monthly doses are given when the primary series is started after the age of 6 months; their recall dose is not administered until several years after completion of the primary series.

PREVENTION OF FEBRILE REACTIONS AND ALUM CYSTS

Slow absorbing (alum-containing) DTP is preferred. It produces earlier, higher, and longer sustained immunity responses than did pertussis vaccine in isotonic sodium chloride solution, and, because of delayed absorption, febrile reactions are usually less frequent and milder. To reduce the incidence and severity, the mother should be instructed to keep the infant more quiet after injection and, if the infant is restless or feverish, to give an adequate dose or two of aspirin. Water should be offered repeatedly, a feeding or two reduced in volume, and excessive covers and sun avoided.

Deposition of alum along the needle tract produces regional fat necrosis, which terminates as an alum cyst or sterile abscess. When the individual dose was contained in a volume of 1 cc., alum cyst followed 2% of the injections. Since the concentration of the individual dose of slow absorbing DTP into a volume of 0.5 cc., and improvement of adjuvant and administration technique, the incidence of alum cyst has decreased to 0.12%.

In children under 3 years of age, alternate lateral gluteal areas (starting with the left proximal area) are preferred sites for the administration of alum-containing DTP antigens. The prone infant is held firmly, preferably by the mother, to lessen crying and squirming. Deviation of the needle from its original course seems to increase the likelihood of alum cyst formation. Termination of each deeply administered dose with an air bubble (0.1 cc.) is an added precaution. To prevent seepage, the needle should remain in place for a few seconds before it is quickly withdrawn. As a final precaution, the site should be promptly and gently massaged with sterile gauze. Subsequent doses (or penicillin) should not be administered at the site of a previous dose. After the 3rd

---

This study was aided by a grant from Parke, Davis & Company, Detroit.

From the Evanston Hospital Whooping Cough Research Laboratory, Northwestern University Medical School, Chicago.

Read in part before La Sociedad Cubana de Pediatria, Havana, Cuba, Feb. 24, 1953.

[1] Lovett, B. R., and Hektoen, L.: Keep Your Baby Away from Whooping Cough, Hygeia **3:** 129-130 (March) 1925.

[2] Kahn, R. L.: Tissue Immunity, Springfield, Ill., Charles C Thomas, Publisher, 1936, p. 628.

[3] Sauer, L. W.: Whooping Cough: A Study in Immunization, J. A. M. A. **100:** 239-241 (Jan. 28) 1933; Immunization with Bacillus Pertussis Vaccine, ibid. **101:** 1449-1451 (Nov. 4) 1933; The Age Factor in Active Immunization Against Whooping Cough, Am. J. Path. **17:** 719-723 (Sept.) 1941.

[4] Sako, W.; Treuting, W. L.; Witt, D. B., and Nichamin, S. J.: Early Immunization Against Pertussis with Alum Precipitated Vaccine, J. A. M. A. **127:** 379-383 (Feb. 17) 1945.

[5] McComb, J. A., and Trafton, M. Z.: Immune Responses and Reactions to Diphtheria and Tetanus Toxoids, with Pertussis Vaccine, Aluminum Phosphate Precipitated, New England J. Med. **243:** 442-444 (Sept. 21) 1950.

[6] Miller, J. J., Jr., and others: Report of the Committee on Immunization and Therapeutic Procedures, Evanston, Ill., Am. Acad. Pediatrics, 1952.

year, alternate upper arms may be used, starting with the left deltoid area. To lessen alum seepage, the needle is directed distally; after withdrawal, the area is covered with sterile gauze and three distally directed massage strokes are applied. Occasionally a deep, circumscribed alum nodule may be palpated for a month or longer. Adherence to these precautions almost completely eliminates alum cyst.

POSTINOCULATION ENCEPHALOPATHY

Byers and Moll[7] were the first to collect cases of encephalopathy following prophylactic pertussis vaccine injections. Toomey[8] augmented the number by sending a questionnaire to hundreds of pediatricians. The triad—fever, convulsions, and irreversible central nervous system changes—resembles that encountered not infrequently in cases of severe pertussis. In defense of pertussis vaccine it should be emphasized that this triad has been reported also after the administration of smallpox vaccine, diphtheria toxoid, typhoid vaccine, and influenza vaccine. Pertussis vaccine in isotonic sodium chloride solution was more frequently implicated than was slow absorbing DTP. The remainder of the vaccine in the vials caused no adverse symptoms when administered to other infants. Antigens of eight commercial biological laboratories were involved. Only once was a severe reaction reported after administration of a recall dose. Central nervous system instability was recorded in a high percentage of the family histories. Pediatricians frequently encounter convulsions in infants and young children at the onset of febrile infections such as exanthema subitum, tonsillitis, and pyelitis. Any child with a history of convulsions should not be given the injection. Should immunization seem desirable, however, fractional doses (0.2 to 0.3 cc.) may be tried at monthly intervals until the full total dosage has been administered. DTP administration should be deferred in premature and frail, nonthriving infants and in those with fever or a pustular infection of the skin or ears.

PARALYTIC POLIOMYELITIS OF INJECTED LIMB

In an editorial[9] "Poliomyelitis and Prophylactic Immunization" THE JOURNAL pointed out that paralysis of an injected limb was reported in several countries after the injection of various antigens. THE JOURNAL states: "Pending the results of further studies, the concept is prevalent in some quarters that children in whom paralytic poliomyelitis develops may have the pattern of their paralysis altered by injection of diphtheria and/or pertussis antigens during an epidemic. . . . Postponement of such immunizations for a few months, until the end of the epidemic, would appear particularly discreet . . . when these diseases are not unduly prevalent in the community at the same time as the poliomyelitis epidemic." Faber[10] collected reports of cases following the administration of diphtheria toxoid, penicillin, typhoid vaccine, cholera vaccine, and smallpox vaccination. It seems unlikely that these diverse medicaments might harbor poliomyelitis virus. One of the theories infers that these patients harbored latent poliomyelitis virus and that the trauma of the antigen induced the disease and localization of the paralysis. Another more likely theory assumes that inadequate sterilization of syringe or needle, or subsequent contamination of sterile syringe or needle with poliomyelitis virus, might have occurred from the physician's fingers or the patient's skin site or fingers. Faber stresses that syringes and needles used for injections should be sterilized by use of the autoclave or, if this is not possible, boiled for 20 minutes. His antiseptic for vial cap and skin site is 2% tincture of iodine.

The 1952 Report of the Committee on Immunization and Therapeutic Procedures of the American Academy of Pediatrics[6] cautions: "An outbreak of poliomyelitis in one's community is a signal for deferring elective immunization procedures in individuals over the age of six months. Primary immunization and/or recall injections obviously cease to be elective procedures when outbreaks of diphtheria, pertussis, typhoid or smallpox coexist with that of poliomyelitis." Physicians should heed these monitions.

STERILIZATION OF SYRINGES AND NEEDLES

Regardless of whether an injection is given in a physician's office, at home, or at mass immunization clinics, sterilization of syringes and needles in the hot oven should be the method of choice. It has been used exclusively at the Whooping Cough Research Laboratory for more than 25 years, during which time over 15,000 infants and children have been inoculated, with no instance of convulsion, postinoculation encephalopathy, or needle poliomyelitis reported. Needles and syringes remain sterile longer and are less readily contaminated than when sterilized by boiling.

Syringes (1 cc.) and needles (25 gage, ½ in.) rinsed in distilled water and dried are best sterilized in a dry, hot air oven maintained at 160 C (320 F) for one hour. A small, inexpensive gas-heated kitchen oven, an electric oven with an oven thermometer, or an electrically heated sterilizer with automatic temperature control is satisfactory. Supplies should be in the oven before the heat is turned on and should not be removed until the oven has cooled. Dried syringes (with attached needle) are placed in heavy-walled Pyrex tubes with gauze-covered cotton in the bottom and firm gauze-covered cotton plugs to facilitate handling. Extra needles, for use during office hours, are sterilized, two to four at a time, in smaller Pyrex tubes. Needles (20 gage), to be left in the vial to facilitate removal of each dose during mass immunizations, are sterilized singly in Pyrex tubes. When the DTP vial is empty, the needle is aseptically transferred to another vial after the cap has been cleansed with alcohol or other antiseptic. For use in mass immunization clinics, extra needles (point downward), cushioned on gauze, 40 to a Monel metal container, should remain sterile for weeks when sealed with adhesive tape. The same sterile syringes may be used without risk of contamination if needles are aseptically replaced with sterile forceps (tips under sterile towel or submerged in antiseptic when not in use) (see figure).

The British Medical Research Council[11] published "The Sterilization, Use and Care of Syringes" in 1945.

---

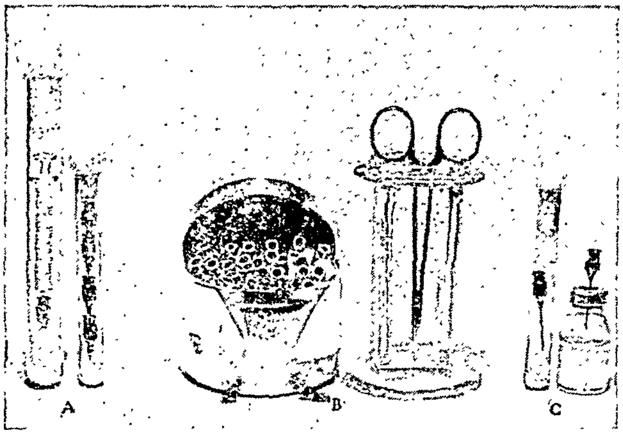
[7] Byers, R. K., and Moll, F. C.: Encephalopathies Following Prophylactic Pertussis Vaccine, Pediatrics **1**: 437-457 (April) 1948.

[8] Toomey, J. A.: Reaction to Pertussis Vaccine, J. A. M. A. **139**: 448-450 (Feb. 12) 1949.

[9] Poliomyelitis and Prophylactic Immunization, editorial, J. A. M. A. **144**: 240-241 (Sept. 16) 1950.

[10] Faber, H. K.: Postinoculation Poliomyelitis, editorial, Pediatrics **7**: 300-304 (Feb.) 1951.

This committee also recommends the hot air oven as the method of choice for sterilization of needles and syringes. They say: "Inflammations and infections following prophylactic inoculation and other types of injection are not uncommon. Abscesses and severe infections sometimes develop, and may occasionally be fatal. It is usually possible to trace a severe infection due to this cause to some technical fault which might have been avoided by the exercise of sufficient care. Any risk, however small, will produce accidents if it is repeated often enough. . . . Complete bacteriological sterility can be achieved only by sterilization in the autoclave or hot air oven. Boiling in water will destroy all pathogenic bacteria except those that produce resistant spores. . . . 'Sterile,' applied to a syringe and needle, implies that the syringe and needle have been through the process of sterilization in the autoclave or hot air oven. It is often loosely applied to a syringe that has been boiled. . . . Where many injections of the same fluid are given, the same syringe may be used for several consecutive subcutaneous or intramuscular—but not intravenous—injections, provided that a fresh needle is used for each patient. . . . Handle needles with sterile forceps only, syringes with dry, washed hands, taking care to touch only the outside of the barrel and the handle of the piston. Do not talk, cough or sneeze over a sterile syringe. Do not allow a sterile needle to touch any unsterilized surface or object before use. . . . Syringes and needles are placed in the oven while it is cold; the time of sterilization is not less than one hour after 160° C has been reached. The oven should be allowed to cool before the syringes and needles are removed. If syringes and needles are sterilized by autoclaving, a temperature of 120° C (15 to 20 lb. pressure) must be maintained for 20 minutes. . . . If an autoclave or hot air oven is not available, 'sterilization' by boiling in water is the method of choice, although boiling cannot be relied on to destroy all spores."



Syringes and needles used in DTP immunization. *A*, arranged for office use; *B*, in Monel metal containers for mass immunization use, and *C*, 20 gage needle left in vial cap during mass injections to expedite aspiration of 0.5 cc. doses of adjuvant-containing DTP.

If oven for sterilization or an autoclave is not available, needles and syringes should be boiled for not less than 10 minutes. If assembled when moist, it is conceivable that contamination might occur. Use of sterile forceps decreases this danger, especially when needles are replaced. Should poliomyelitis virus be introduced into a vial when a dose is aspirated and not be destroyed by the preservative before another dose is withdrawn, the virus might be transmitted to susceptible persons.

Sterilizing syringes and needles in an autoclave at 120 C is satisfactory but too time consuming as a routine procedure. It should be reserved for periodic sterilization of small bags of gauze squares and wrapped forceps used in needle exchange.

MASS IMMUNIZATION

Many infants in congested and rural areas are still victims of pertussis and die from its complications. Mass immunization clinics for the administration of slow absorbing DTP should be located at (1) well baby clinics, (2) primary schools, or (3) mobile units. Sessions should be held weekly, semimonthly, or monthly, depending on the number of infants to be injected. Linking pertussis and tetanus with long-established diphtheria immunization saves time for parent, nurse, and physician; it elicits minimal discomfort and hazard to the child. It is now customary to start the primary series at the age of 3 or 4 months, provided the child's health is satisfactory. Soon after an infant's birth, the maternity health nurse should inform the mother when to bring her infant, and the visiting nurse should remind her of the date for the initial dose. A mass immunization team of at least four facilitates antigen administration. When their work is coordinated, about 50 infants can be injected hourly without hazard to any child. The team keeps all records, teaches the mother how to expose the injection site and how she should hold her infant when the dose is administered, gives the card with dates for subsequent doses, and tells her what to do if high fever should occur. The team includes, preferably, a competent nurse who has complete charge of needles, syringes, and the antigen and a registered physician who cleanses each skin site with an individual sterile gauze square (2 by 2 in.), saturated with alcohol[12] before he administers the dose. Routinely, before the sterile syringes and needles are exposed, the nurse and physician wash their hands with soap (preferably under running water), dry on clean individually dispensed towels, and apply 70% alcohol to fingers. As an added precaution, their hands avoid unnecessary contact with any infant. The prone infant on the mother's lap, with only the proper gluteal area exposed is held firmly with her left hand at the knees and the right above the hips to prevent squirming. Each dose is delivered deeply (intramuscularly) and terminated with 0.1 cc. of air. After waiting for a few seconds, the needle is quickly withdrawn and the site gently massaged with the sterile gauze. Alternate lateral gluteal areas, starting with the left proximal are the sites of choice.

The Evanston Health Department established a municipal clinic for smallpox and diphtheria immunization in 1926. Pertussis immunization was added in 1932 and tetanus toxoid in 1944. Infants and preschool children of indigent families and those with low incomes are referred

---

[11] Medical Research Council: The Sterilization, Use and Care of Syringes, War Memorandum No. 15, London, His Majesty's Stationery Office, 1945.

[12] A few seconds should elapse for its antiseptic action. Early in 1952, following Faber's technique, 2% tincture of iodine was used; later, 1% in 70% alcohol was tried. Profuse lacrimation and frequent desquamation of the skin site made me resume use of 70% denatured ethyl alcohol.

to the clinic by infant welfare nurses and other agencies. After the parent signs the request slip, the infant is brought to the adjacent room by the mother and the dose is administered. When the series is completed, the parent is given an immunization certificate with the child's name, date of birth, parent's name and address, and date of completion of the injections. A master card is filed in the records of the health department clinic. The only recall dose of slow absorbing DTP (0.5 cc.) is administered before school attendance. During the decade prior to the establishment of the semimonthly immunization clinic (1922-1931) the total of reported cases of pertussis was 3,420 (16 deaths); during the last decade (1943-1952) the total has been 414 reported cases (no deaths). Private patients have been given injections by their physicians. Although the population of the city had increased by about 15%, the number of reported cases has decreased to 12% of that of the preimmunization decade. There has been no death due to diphtheria since 1938, to tetanus since 1940, and to pertussis since 1931.

Failure to confer immunity may be due to the use of impotent vaccine resulting from prolonged or repeated interruption in refrigeration (temperatures above 10 C, or 50 F); outdating; inadequate total basic dosage (when started as early as the 3rd month of life, some infants require four monthly doses of slow absorbing DTP); doses improperly spaced (less than one, or more than three months apart); delay or omission of routine recall or extra recall doses; poor technique (vial not adequately shaken, leaky syringe or needle, or seepage); exposure before immunity was attained; or wrong diagnosis (parapertussis, allergy, or influenza simulating pertussis).

SUMMARY

Diphtheria, tetanus, and pertussis morbidity and mortality warrant early primary mass immunizations with adjuvant containing DTP antigens and precautions against adverse reactions. Prolonged active immunity is attained by three monthly doses starting at 3 months and a recall (stimulating or booster) dose one year later, or four monthly doses starting at 3 months and a recall dose three years later. An extra recall dose (DTP or the specific antigen) should be given promptly after wounding, intimate exposure to diphtheria, or intimate exposure to pertussis. The hot air oven (160 C, or 320 F, for one hour) is the preferred method of sterilization for syringes and needles. Seventy per cent denatured ethyl alcohol on individual pieces of sterile gauze is adequate for sterilizing the vial cap and skin site. Deferment of prophylactic immunization procedures is advised during a poliomyelitis epidemic in the community.

636 Church St.

CONVULSANT EFFECTS OF ISONIAZID

Richard H. Reilly, M.D., Keith F. Killam, M.S., Elizabeth H. Jenney, M.S., William H. Marshall, M.D.,
Chicago, Theodore Tausig, M.D., Manteno, Ill., Nathaniel S. Apter, M.D.
and
Carl C. Pfeiffer, M.D., Ph.D., Chicago

This report is the first collaborative effort of members of a university department of pharmacology, the staff of a state hospital, and the psychiatric division of another university faculty. Although we have outlined a coordinated research program, we do not assume that the degree of communication necessary for multidisciplinary research has yet been achieved. Data and information are being gathered and consolidated so that the common biological principles involved in our respective disciplines can eventually be more clearly formulated. In the meantime, we are utilizing common observations for emphasizing various perspectives on some similar problems. The pharmacologist is interested in studying the biochemical factors in epilepsy and identifying more effective chemotherapeutic agents for schizophrenic patients.[1] The psychiatrist makes the basic assumption that changes in the internal milieu will be reflected in behavioral alterations. Since the hydrazides alter cerebral cortical functions and produce electroencephalographic evidence of this alteration, this class of biochemical compounds seemed especially deserving of study. This research approach has been described elsewhere.[2] The psychiatrist is interested in the changes in behavior that may be obvious when data are collected prior to, during, and after the administration of hydrazides. Such comparisons may yield further insight into the schizophrenic reactions, the mechanisms by which convulsive experiences modify adaptations in chronic psychotic patients for longer or shorter periods, and the clinical events that signify reversibility or irreversibility of the schizophrenic reactions. This and current collaborative projects may be characterized briefly by stating that we are reciprocally exploiting each other's interests in basic biological and therapeutic problems.

PHARMACOLOGICAL BACKGROUND

The convulsions produced by many unsubstituted hydrazides, given in large amounts by any route, resemble grand mal epilepsy, in that major seizures appear

---

Dr. Alfred Paul Bay, Superintendent of Manteno State Hospital, assisted in these studies.

These studies, Proj. M-639, were supported in part by a grant from the United States Public Health Service.

The isoniazid, iproniazid, and pyridoxine used in this study were contributed by Hoffmann-La Roche Inc., Nutley, N. J.

From the Manteno State Hospital (Dr. Tausig), the University of Chicago, Division of Psychiatry (Dr. Apter and Dr. Reilly), and the University of Illinois College of Medicine (Dr. Pfeiffer, Mr. Killam, Dr. Marshall, and Miss Jenney).

[1] (*a*) Jenney, E. H., and Lee, L. D.: The Convulsant Effect of Semicarbazide, abstracted, J. Pharmacol. & Exper. Therap. **103:** 349 (Dec.) 1951. (*b*) Stephens, R. R., and others: Grand Mal Convulsive Seizures in Patients Receiving Semicarbazide, abstracted, ibid. **106:** 418-419 (Dec.) 1952.

[2] Apter, N. S.; Halstead, W. C.; Eisele, C. W., and McCullough, N. B.: Impaired Cerebral Functions in Chronic Brucellosis, Am. J. Psychiat. **105:** 361-366 (Nov.) 1948. Apter, N. S.; Halstead, W. C., and Heimburger, R. F.: Impaired Cerebral Functions in Essential Hypertension, ibid. **107:** 808-813 (May) 1951. Apter, N. S., and others: Alterations of Cerebral Functions in Pheochromocytoma, Neurology **1:**283-292 (July-Aug.) 1951.

intermittently after a latent period of one to two hours.[1] Other convulsant drugs, administered intravenously, act immediately or, if given orally, produce continuous seizures of the clonic type.

Two known biochemical effects of hydrazides are carbonyl trapping and inactivation of amine oxidases.[3] Moreover, hydrazides lower the cerebral threshold for photic and auditory stimuli. After their administration, flickering light or repeated sounds produce spikes of high potential in the electroencephalogram and myoclonic movements of the extremities. If the stimulation is continued, a grand mal seizure may supervene. Semicarbazide, 40 mg. per kilogram of body weight given intravenously, produces grand mal seizures in man. When photic stimulation is used, the amount of semicarbazide required is reduced to 25 mg. per kilogram.[1b]

TABLE 1.—*Effect of Pretreatment with Semicarbazide on the Susceptibility of Mice to Pentylenetetrazole or Strychnine Toxicity**

Pretreatment Dose of Semicarbazide, Mg. per Kilogram of Body Weight	Lethal Pentylene-tetrazole Infusion, Mg. per Kilogram of Body Weight	Lethal Strychnine Infusion, Mg. per Kilogram of Body Weight
0	101	0.79
25	80.3	....
50	41.5	0.80
75	28.0	0.73

* Ten mice were in each group.

The convulsant effects of hydrazides appear slowly but resemble the action of pentylenetetrazole (Metrazol) rather than that of strychnine. This was demonstrated by pretreating mice with subconvulsive doses of semicarbazide and then infusing pentylenetetrazole or strychnine intravenously. The threshold dose of strychnine is constant; however, the amount of pentylenetetrazole diminishes in direct proportion to the size of the pretreatment dose of semicarbazide (table 1). Direct application of semicarbazide to the cerebral cortex of the monkey provided additional evidence regarding the action of the hydrazides.[4] Within 20 minutes spiking appeared at the site of application, the inferior rolandic area. In 30 minutes the spiking spread to temporal and frontal areas. Generalized convulsive movements then ensued. Hydrazide-induced seizures can be controlled by depressant drugs or, in selected instances, by intravenously administered pyridoxine (vitamin B_6).[5] In one case a schizophrenic patient was ordinarily subject to convulsions after taking 4 gm. orally of semicarbazide plus photic stimulation. In this instance, 5 gm. was given orally and five hours later a control electroencephalogram was taken. Thereafter, the RT lead was switched out and all of the leads moved up, so that a recording could be made from the photoelectric cell on the forehead. A variation was seen in the base line of the photoelectric cell lead, owing to myoclonus of the neck muscles. When high potential spikes were obtained in all leads and a seizure was imminent, an intravenous injection of 225 mg. of pyridoxine hydrochloride was given over a 16 second period while photic stimulation was continued. The patient continued to have myoclonus for four to six minutes but did not have a seizure. In this patient spiking occurred earliest and remained latest in the frontal leads.

Isoniazid and iproniazid are inactivators of amine oxidases. Zeller reported that isoniazid is a potent inactivator of diamine oxidase but has little or no inhibiting effect on monamine oxidase. The reverse situation is, however, characteristic of iproniazid activity.[6] Animals given isoniazid die of convulsions with doses of 150 mg. per kilogram of body weight, while iproniazid-treated animals succumb in depression with doses of 750 mg. per kilogram. Therefore, it seems possible that isoniazid would produce convulsions in man but that iproniazid would not unless the isopropyl group was easily removed in the human body. Pyridoxine in the mouse can be used as a partial antidote for both isoniazid and iproniazid (table 2).

A review of the main side-effects of hydrazide therapy in tuberculous patients[7] discloses two types of clinical reactions: those referable to the autonomic nervous system, which are common, and those occurring as a consequence of stimulation of the central nervous system, which are rare (table 3). Convulsions have, however, been encountered. The tuberculous patient with epilepsy requires a higher maintenance dose of an anticonvulsant medicament during isoniazid therapy.

TABLE 2.—*Antidotal Effect of Pyridoxine on Iproniazid and Isoniazid Toxicity in Mice*

Group	Material	Dose, Mg. per Kilogram of Body Weight	No. of Mice Lived	No. of Mice Died	No. of Mice Total
1	Iproniazid intraperitoneally	800	5	23	28
	Iproniazid intraperitoneally and 400 mg. per kilogram of pyridoxine intravenously	800	15	16	31
	$\chi^2 = 4.83$ $p < 0.05$				
2	Isoniazid intravenously	200	1	22	23
	Isoniazid intravenously and 50 mg. per kilogram of pyridoxine intravenously	200	11	12	23
	$\chi^2 = 9.13$ $p < 0.01$				
3	Isoniazid intravenously	200	2	14	16
	Isoniazid intravenously and 100 mg. per kilogram of pyridoxine intravenously	200	11	5	16
	$\chi^2 = 8.29$ $p < 0.01$				

OBSERVATIONS ON PATIENTS

Four types of observations with isoniazid and iproniazid were undertaken in man. These were (*a*) the determination, by electroencephalographic technique, of the degree of sensitization to photic stimulation that isoniazid produces, (*b*) a comparison of isoniazid and iproniazid in a large number of patients to determine the degree of recruitment of facial muscles when patients are exposed to photic stimulation, (*c*) the effect of large doses of each of the drugs on the schizophrenic state, and (*d*) the determination of the convulsant dose of isoniazid in schizophrenic patients. Patients were observed closely before, during, and after the period of drug action. The use of flickering light to induce a seizure effectively reduced the required dose and allowed for the maximal medical assistance at the time of the seizure. During the period of susceptibility to convulsions, patients stayed in bed to prevent possible injury. All of the patients treated with iproniazid were kept on absolute bed rest during the period when postural hypotension developed. Laboratory examinations were performed frequently to detect signs of intoxication as early as possible. The behavioral status of each patient was observed closely to detect, if possible, any changes, minor or major. No concomitant illness existed in any of the chronic schizophrenic patients treated with the drugs.

---

[3] Zeller, E. A., *and others: Influence of Isonicotinic Acid Hydrazide* (INH) and 1-Isonicotinyl-2-Isopropyl Hydrazine (IIH) on Bacterial and Mammalian Enzymes, Experimentia **8**: 349, 1952.

[4] Lowell, D. J.; Ross-Duggan, J. K., and Piazza, S.: The Convulsant Effect of Semicarbazide in Macaca Mulatta, abstracted, J. Pharmacol. & Exper. Therap. **106**: 404-405 (Dec.) 1952.

[5] Parks, R. E., Jr.; Kidder, G. W., and Dewey, V. C.: Thiosemicarbazide Toxicity in Mice, Proc. Soc. Exper. Biol. & Med. **79**: 287-289 (Feb.) 1952. Jenney, E. H.; Smith, R. P., and Pfeiffer, C. C.: Pyridoxine as an Antidote to Semicarbazide Seizures, abstracted, Fed. Proc. **12**: 333 (March) 1953.

[6] Zeller, E. A., and Barsky, J.: In Vivo Inhibition of Liver and Brain Monoamine Oxidase by 1-Isonicotinyl-2-Isopropyl Hydrazine, Proc. Soc. Exper. Biol. & Med. **81**: 459-461 (Nov.) 1952.

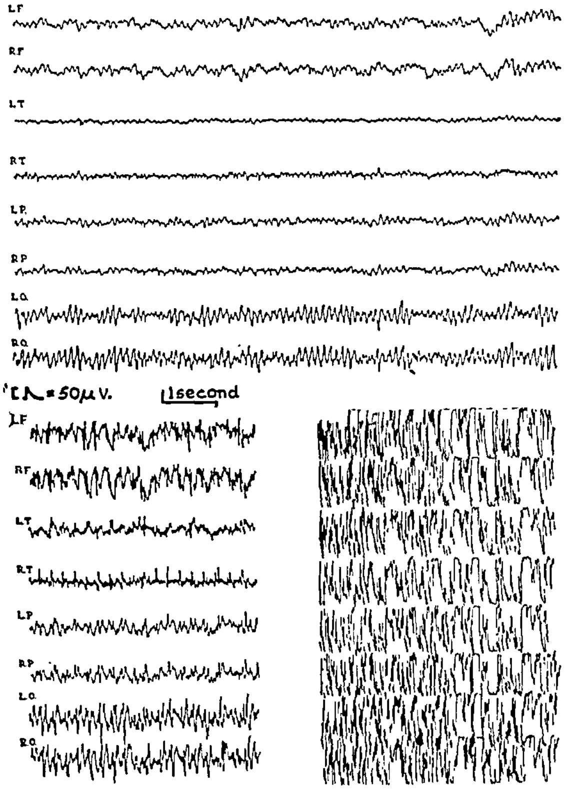
[7] Robitzek, E. H., and Selikoff, I. J.: Hydrazine Derivatives of Isonicotinic Acid (Rimifon, Marsilid) in the Treatment of Active Progressive Caseous-Pneumonic Tuberculosis: Preliminary Report, Am. Rev. Tuberc. **65**: 402-428 (April) 1952.

Electroencephalographic Studies.—Isoniazid greatly lowers the epileptogenic threshold for photic stimulation, so that the application of a flickering light (14 to 20 flashes per second) will produce a grand mal seizure. The convulsive response to photic stimulation is first manifested by an initial myoclonic twitching of the orbicularis oculi and supra palpebral muscles. This is followed by recruitment of the frontalis and jaw muscles and then generalized myoclonus, which terminates in tonic extension and loss of consciousness. The succession of movements resembles the pattern described by Gastaut, who used photic stimulation immediately after the intravenous administration of pentylenetetrazole, 7 mg. per kilogram of body weight.[8] The electroencephalogram at first shows an augmented alpha potential in the occipital leads and then spiking activity in the frontal leads. The figure shows the reaction of schizophrenic patient who was given 20 mg. per kilogram of isoniazid intramuscularly. Two hours later photic stimulation was started and continued for four minutes, after which a grand mal seizure occurred. The selected records are at one minute, two minutes, and four minutes. At one minute, the patient showed high alpha waves in the occipital leads. At two minutes, high potential spikes occurred in all leads but were more numerous in the occipital and frontal leads. The last record shows the grand mal seizure. By way of contrast, the electroencephalogram, after large intramuscular doses of iproniazid (25 to 40 mg. per kilogram), records no abnormalities over a period of three to four hours, nor do these large doses lower the threshold for photic stimulation. Large single doses of iproniazid are well tolerated. Signs of intoxication are, however, produced by daily doses of 15 mg. per kilogram.

Table 3.—*Untoward Effects Encountered in Tuberculous Patients*

	Daily Oral Dose	
Area Affected	Isoniazid, 4 Mg. per Kilogram of Body Weight	Iproniazid, 2 Mg. per Kilogram of Body Weight
Autonomic nervous system (common)	Dryness of mouth Constipation Delayed micturition	Dryness of mouth Constipation Delayed micturition Postural hypotension Syncope
Central nervous system (rare)	Vertigo Muscular twitching Hyper-reflexia Convulsions	Syncope Vertigo and tinnitis Convulsions when given with meperidine *Psychosis*
Miscellaneous (rare)	Nausea and vomiting	Nausea and vomiting Anemia Icterus

Recruitment After Photic Stimulation.—The phenomenon of recruitment of the facial muscles may be used to assay a lowered threshold for photic stimulation. In 31 patients of both sexes an oral dose of 15 mg. per kilogram of isoniazid induced recruitment to photic stimulation in 14 of the 31 patients two to four hours after the drug was given. When tested at the same time after an oral dose of iproniazid (15 mg. per kilogram), none of the 31 patients showed this recruitment. We, therefore, concluded that a hydrazide must be unsubstituted to produce convulsions.



Electroencephalogram of patient who received photic stimulation two hours after administration of isoniazid, 20 mg. per kilogram of body weight. A grand mal seizure occurred.

Use of Moderately Large Doses of Isoniazid and Iproniazid.—Isoniazid and iproniazid, in combination with photic stimulation, were administered to two groups of patients. Group 1 consisted of eight chronic schizophrenic patients with predominantly catatonic features and was designated for long-term therapeutic trial with moderately large doses. Patients of group 2, similarly composed, were observed to determine the convulsant dose of isoniazid. For both groups the drugs were given three times per week on alternate days. During a three month preliminary observation period there were no substantial changes in behavioral patterns. Group 1 was then submitted to two separate therapeutic trials. During the first trial, half of group 1 received isoniazid and half received iproniazid. The dosage was 15 mg. per kilogram of body weight for each drug. This was considered a subconvulsive dose. The drug was injected intramuscularly, and, about two hours later, the patients were photically stimulated (14 to 20 flashes per second) for five minutes. Blood pressure and pulse readings were taken frequently on treatment days (table 4). Iproniazid, after 9 to 10 treatments over a three week period, produced postural hypotension in all four patients and was, therefore, discontinued. The hemoglobin decreased to 60% of normal in one patient. After a two week rest period, all of the eight patients in group 1 were given isoniazid for the second trial. The patients who had been taking iproniazid received 15 mg. per kilogram of isoniazid. Those who had been taking isoniazid in the first trial had an increase in dosage to 25 mg. per kilogram intramuscularly (table 4). These large single intramuscular doses of isoniazid were without toxic effect and consistently produced a convulsion in only one patient. This seizure occurred with photic stimulation.

---

[8] Gastaut, H.: Combined Photic and Metrazol Activation of the Brain, Electroencephalog. & Clin. Neurophysiol. 2: 249-261 (Aug.) 1950.

TABLE 4.—*Effect of Repeated High Dosage of Iproniazid and Isoniazid in Group One*

Name	Sex	Drug, 15 Mg. per Kilogram of Body Weight 3 Times per Week	No. of Treatment Days	Periorbital Myoclonus	Head Jerks	General Myoclonus	Convulsions	
				Trial 1				
A. H.	F	Iproniazid	9	0	0	..	0	Drug discontinued after seventh to ninth treatment owing to *severe postural hypotension*, with syncope that lasted 10 days
T. N.	M	Iproniazid	7	1	0	..	0	
J. P.	M	Iproniazid	9	0	0	..	0	
J. W.	M	Iproniazid	9	0	0	..	0	
A. H.	F	Isoniazid	10	8	1	..	0	No ill-effects
M. M.	F	Isoniazid	10	5	2	..	0	No ill-effects
R. B.	M	Isoniazid	10	4	0	..	0	No ill-effects
T. G.	M	Isoniazid	10	3	0	..	0	No ill-effects
			Trial 2, All Patients Were Given Isoniazid Intramuscularly 3 Times per Week					
Name	Sex	Dose, Mg. per Kilogram of Body Weight						
A. H.	..	15	11	11	0	0	0	No ill-effects
T. N.	..	15	11	1	0	0	0	No ill-effects
J. P.	..	15	11	2	1	0	0	No ill-effects
J. W.	..	15	11	11	1	0	0	No ill-effects
A. H.	..	25	10	10	9	8	8	Tachycardia (140) developed 1½ hours after injection. This lasted several hours. Electrocardiogram showed tachycardia and no other abnormality
M. M.	..	25	11	5	1	0	0	No ill-effects
R. B.	..	25	11	10	2	1	0	No ill-effects
T. G.	..	25	11	11	11	4	0	No ill-effects

TABLE 5.—*Summary of Sixty-Two Clinical Trials of Isoniazid as a Convulsant Agent in Group Two**

Patient	Sex	Dosage, Milligrams per Kilogram of Body Weight Intramuscularly						
		20	22	25	30	35	40	45
P. McF	F	O (3) PS (1)	....	....	....	....	....	....
M. L.	M	PS (1)	....	PS (1)	....	....	....	....
A. K.	M	....	....	O (1)	PS (2)	O (1)	....	....
S. L.	F	O (1)	PS (3)	PS (1)	PS (1) T (1)	....	.... T (1)	....
C. B.	F	....	....	O (1)	O (1)	O (2) PS (2)	O (1) PS (1)†	....
R. M.	F	....	....	O (1)	O (1)	PS (2) O (1) T (2)	.... T (2)	....
B. B.	M	....	....	O (1)	O (1)	PS (2) O (2) S (1)	.... O (1) S (1)	....
H. K.	M	....	....	O (1)	O (1)	O (3) PS (1)	O (1) PS (2)	....
L. K.	M	....	....	O (1)	O (1)	O (1) PS (2) T (1)	O (1) .... T (1)	O (1) ....

* Photic stimulation was 14 to 24 flashes per second applied hourly. *O indicates no seizure occurred in spite of photic stimulation.* PS indicates a seizure was induced by photic stimulation. T indicates that tachycardia with a pulse rate of over 130 per minute occurred. S indicates that a spontaneous seizure occurred. The figures in parentheses show the number of trials with the same designated dose in which the same result was obtained.

† Seizure accompanied by apnea of moderate duration.

Determination of the Convulsant Dose of Isoniazid.—The nine patients in group 2 were given steadily increasing intramuscular doses of isoniazid in increments of 5 mg. per kilogram, to determine the dosage at which convulsions could be induced with photic stimulation. This group was composed of nine chronic schizophrenic patients of various subtypes. The dosage schedule was arranged so that one male patient, L. K., was given 5 mg.

per kilogram more than the other five patients on all treatment days until a convulsive dose of isoniazid was ascertained (table 5).

In doses ranging from 20 to 45 mg. per kilogram given intramuscularly, 30 out of 62 trials resulted in no seizure and 22 resulted in a lowered threshold for photic stimulation, so that a generalized convulsion occurred. Eight trials produced tachycardia above 130 beats per minute; in these cases photic stimulation was not attempted and pyridoxine was given as an antidote. Spontaneous seizures occurred twice in one patient (B. B.) after doses of 35 and 40 mg. per kilogram, respectively. The only suggestion of a serious reaction was moderately prolonged apnea in one woman after a photic-stimulation-induced seizure. Doses as large as 40 mg. per kilogram were not reliably convulsant, since we have 4 failures at this dosage and 10 failures at 35 mg. per kilogram. Although these doses were given three times a week with a one day rest period in between, we had the impression that these patients were showing some degree of tolerance to the convulsive dose rather than an increase in sensitivity. All of the patients showed some degree of improvement in their mental state, but the improvement was not dramatic and was quite comparable to the degree of improvement that might be expected from equivalent electroconvulsive therapy.

COMMENT

In addition to a general intolerance to autonomic agents, possibly explained by an inhibitory effect on amine oxidases, the isoniazid-treated patient may have a central nervous system that is sensitized to auditory and visual stimuli. Thus, patients on high dosages of isoniazid should be warned and protected from flickering lights and repetitive noises. All patients should be carefully questioned regarding epilepsy, seizures, or convulsions in childhood when isoniazid therapy is contemplated. Since isoniazid is excreted in the urine, poor kidney function may also cause excessive intoxication.

If convulsions occur, 100 to 120 mg. of phenobarbital should be given slowly intravenously. Dienemann [9] reports that in a 50-year-old male tuberculous patient who was taking 6 mg. per kilogram of body weight of isoniazid daily, convulsive seizures developed 10 to 15 minutes after an injection of Irgapyrin (combination of phenylbutazone and aminopyrine). Phenobarbital (dose?) was given intramuscularly, and shortly thereafter respiration stopped. Analeptics and artificial respiration were ineffective. Thereafter, Simon [9] showed in the mouse that the convulsive effect of aminopyrine is enhanced by pretreatment with isoniazid. The possible convulsion enhancing effect of phenylbutazone (Butazolidin) was not studied.

Pyridoxine is completely effective in preventing grand mal convulsions in man and animals when simple hydrazides such as the semicarbazides are the convulsant agents.[10] This antagonism of pyridoxine against isoniazid can also be demonstrated reliably in animals; however, the antagonism is not complete, and, therefore, sodium phenobarbital should be the anticonvulsant of choice if convulsions occur in patients. With the usual doses of isoniazid, the patient who has convulsions probably has unsuspected epilepsy. Therefore, the greatest benefit might be obtained with depressant anticonvulsant medication such as phenobarbital rather than pyridoxine. Diphenylhydantoin is ineffective in the experimental animal and, therefore, is not indicated in these convulsions, nor should it be relied on to protect the epileptic tuberculous patient when isoniazid therapy is used. In the tuberculous patient, the use of pyridoxine as an antidote to isoniazid toxicity may temporarily negate the chemotherapeutic effect if these new agents inhibit the bacterial enzyme systems in which pyridoxine is involved; however, 200 to 400 mg. of pyridoxine can be given intravenously if continuous convulsions are uncontrolled by phenobarbital.

Isoniazid has been well tolerated intramuscularly by schizophrenic patients in single doses as high as 40 mg. per kilogram. These high doses should reassure phthisiologists of the safety of this new drug. This knowledge may be useful to those who give single high doses of either isoniazid or iproniazid to prevent bronchial infection at the time of the operation. The patients used in this study had normal kidney function and no epileptic tendencies—two facts that must be known before giving large single doses; however, the present dose of 4 mg. per kilogram a day of isoniazid has been determined to be moderately safe in all patients, and, therefore, the nonepileptic patient with good kidney function could probably tolerate safely 10 to 12 mg. per kilogram a day in divided doses and higher doses if phenobarbital is given concomitantly. These high doses should be chemotherapeutically more effective in the treatment of tuberculosis.

SUMMARY

Hydrazides lower the threshold for photic stimulation in both animals and man. Isoniazid alone or combined with photic stimulation may result in a grand mal seizure when large single intramuscular doses are given. The effective convulsant dosage of isoniazid varies with the person. The extremes in this study were from 22 mg. to 35 mg. per kilogram of body weight. Isoniazid caused spontaneous seizures in one patient with intramuscular doses of 35 and 40 mg. per kilogram. No dosage level of isoniazid up to 45 mg. per kilogram would consistently produce convulsions. A tachycardia of 130 or more occurred in a significant number of patients on high doses. These findings make isoniazid undesirable as a convulsant agent for shock therapy. Iproniazid in a dosage of 15 mg. per kilogram three times a week produced severe postural hypotension within three weeks in all patients, whereas single large doses were well tolerated. Iproniazid does not lower the threshold for photic stimulation and is, therefore, probably not directly convulsant in man. The slight change in mental status of some of the schizophrenic patients during hydrazide therapy was not remarkable.

1853 W. Polk St. (12) (Dr. Pfeiffer).

---

[9] Dienemann, G., and Simon, K.: Report of a Death with Combined Administration of Irgapyrin and Neoteben (INH), München med. Wchnschr. 95: 221-222 (Feb. 13) 1953.

[10] Reilly, R. W., and others: Therapy of Resistant Schizophrenia with Semicarbazide and Photic Stimulation, abstracted, Fed. Proc. 12: 359-360 (March) 1953.

DIABETES IN A NEW ENGLAND TOWN

REPORT OF FOUR YEAR PROGRESS STUDY OF THE OXFORD, MASS., DIABETES SURVEY OF 1946-1947

Hugh L. C. Wilkerson, M.D., U.S.P.H.S.
and
Leo P. Krall, M.D., Boston

The state of 70 diabetics after a lapse of time and the challenge of the premise "once a diabetic, always a diabetic" prompted a return to the town of Oxford, Mass., to study those persons previously identified as having diabetes in a community survey there. The results of the original survey had been interpreted, by some authorities, to mean that there were over one million unknown cases in this country. Of equal interest was a study of the behavior of incipient diabetes, or the so-called prediabetic state. In the winter of 1946-1947, a diabetes survey was made of 70.6% of the entire population of 4,983 persons in Oxford, Mass. The objective was to determine the prevalence of diabetes in an American community and to study methods for screening large groups for diabetes.[1] On the fourth anniversary of the Oxford survey, a progress study was begun in order to determine the status of the diabetics originally discovered and to investigate the interim development of diabetes in selected groups. It was thought this study would provide valuable information about the natural history and epidemiology of diabetes.

Certain facts about the original report should be recalled: 1. Postprandial blood and urine tests for sugar were done on all participants. 2. The age distribution of the population in Oxford, Mass., closely paralleled that of the United States in 1945. 3. Forty persons in the town were previously known to have diabetes, and 30 new cases were found. 4. Two per cent of the group tested had diabetes. 5. The most conservative estimate of prevalence for the town was 1.4%, based on 0.8% known and 0.6% previously unknown cases. This estimate assumed that no diabetes existed among the untested population. 6. If the number of unidentified cases among untested persons on the basis of the rate for persons tested is estimated and added, the prevalence of diabetes in Oxford becomes 1.7%.

The prevalence rate of 1.4 to 1.7% indicated in the original paper has been substantiated in several other surveys. From San Jose, Calif.,[2] a diabetes prevalence of about 1.6% in an industrial population was reported. In one of the most comprehensive studies to date, Kenny, Chute, and Best[3] did blood and urine tests on 81% of the 4,800 population of Newmarket, Ontario, Canada, and reported a prevalence of 1.2%. In general, the studies utilizing a combination of personal interview, history, and laboratory tests have proved that the earlier studies based on questionnaires have been far too conservative in their estimates of diabetes prevalence.[4]

The follow-up study in Oxford, Mass., was conducted in the winter of 1950-1951. The following groups from the original survey were included in the study, with a view to determining their present diabetic status: (1) the 30 cases of previously unknown diabetes that were discovered in the first survey, (2) the 40 cases of diabetes that were already known to physicians at the time of the first survey, (3) a blood sugar suspect group of 118 persons with borderline or relatively higher than normal blood sugar readings in the first survey, (4) a control group of 225 persons with average or normal blood sugar readings in the first survey, conforming in age and sex distribution to the blood sugar suspect group, and (5) a glycosuria suspect group of 17 persons repeatedly showing sugar in the urine with variable blood sugar levels that did not meet the criteria for the diagnosis of diabetes.

TABLE 1.—*Status of Seventy Diabetics from the Oxford, Mass., Survey on Follow-Up, 1950-1951*

Status on Follow-Up, 1950-1951	Total	Newly Discovered, 1946-1947	Known Prior to 1946-1947
Total	70	30	40
Living, diabetic	47	20	27
Living, diabetes questioned	7	2	5
Dead, diabetic	15	7	8
Dead, diabetes questioned	1	1	..

METHODS

For the diabetics studied, a short interim history was recorded, including information on changes relative to general health and diabetes. Venous blood specimens were taken one to two hours after a meal containing at least 50 gm. of carbohydrate. Blood sugar analyses were done by the standard Folin-Wu method, as they had been in the 1946-1947 survey.[5] The presence of urinary sugar was detected by the suitable diagnostic procedures (Clinitest and Galatest). In addition, when the diagnosis of diabetes was in question, a three hour 100 gm. oral glucose tolerance test was done. Limited follow-up studies had been done on the diabetic patients in 1948,

---

Dr. Wilkerson is Medical Director and Chief of the Diabetes Section, Division of Chronic Disease and Tuberculosis. Dr. Krall is from the Joslin Clinic.

Frank K. Butler, public health adviser, and Barbara Glenn, statistician, United States Public Health Service, assisted in the collection, compilation, and analysis of data in this report.

[1] Wilkerson, H. L. C., and Krall, L. P.: Diabetes in New England Town: Study of 3,516 Persons in Oxford, Mass., J. A. M. A. **135**: 209 (Sept. 27) 1947.

[2] Canelo, C. K.; Bissell, D. M.; Abrams, H. K., and Breslow, L.: Multiphasic Screening Survey in San Jose, California Med. **71**: 409 (Dec.) 1949.

[3] Kenny, A. J.; Chute, A. L., and Best, C. H.: Study of Prevalence of Diabetes in Ontario Community, Canad. M. A. J. **65**: 233 (Sept.) 1951.

[4] The Magnitude of the Chronic Disease Problem in the United States: National Health Survey, 1935-1936, Bulletin 6, Sickness and Medical Care Series, U. S. Public Health Service, 1938. Marks, H. H.: Statistics of Diabetes, New England J. Med. **235**: 289 (Aug. 29) 1946.

[5] Because of the increasing trend to true blood sugar determinations, as championed by Mosenthal and Barry (Criteria for and Interpretation of Normal Glucose Tolerance Tests, Ann. Int. Med. **33**: 1175 [Nov.] 1950), Haunz and Keranen (Clinical Interpretation of Blood Sugar Values: Study of Folin-Wu, Somogyi-Nelson and Wilkerson-Heftmann Blood Sugar Determinations in 100 Subjects, Proc. Am. Diabetes A. **10**: 200, 1950), and others, the Somogyi-Nelson blood sugar determination was also done on each blood specimen in order to confirm the Folin-Wu procedure. A comparison of different blood sugar methods is the subject of another paper.

and occasional reference will be made to these data where meaningful.

One of the newly discovered, or unknown, cases and five of the previously diagnosed, or known, cases had moved from the town, and the status of each of these six was determined by visit or correspondence. For the blood sugar suspect group, the control group, and the glycosuria suspect group, the same type of interim history was recorded and the same procedure of postprandial tests was done if possible, though occasionally blood sugar determinations were made with capillary instead of venous blood, according to the Folin-Malmros method. To establish the possibility of diabetes, if any patient in these groups had a postprandial venous blood sugar reading between 140 and 200 mg. per 100 cc. in the progress study, a standard three hour 100 gm. oral glucose tolerance test was done where possible.

TABLE 2.—*Course of Disease in Thirty Diabetics Discovered in 1946-1947 Survey*

Case No.	Sex	Age in 1950 or at Death	Blood Sugar* in Mg. per 100 Cc.		Glycosuria, 1950	Control, 1950		Serious Illness Reported	Cause of Death	Disposition
			1946	1950		Diet	Insulin			
1	M	20	190+	113	3+	Yes	0	None	....	Glycosuria, diabetes questioned
2	F	61	496	306	2+	Yes	Yes	None	....	Diabetes
3	M	73	180	191	1+	Yes	0	Kidney disease	....	Diabetes
4	F	43	180	176 T	1+	Yes	0	None	....	Diabetes
5	F	56	200	231	4+	0	0	Heart attacks	....	Diabetes
6	M	58	190	178	0	Yes	0	None	....	Diabetes
7	M	53	215	...	...	....	....	→	Coronary heart disease	Diabetes questioned
8	M	80	340	...	...	....	....	→	Cancer, kidney disease, uremia	Diabetes
9	M	57	200 T at 2 hr.		...	....	....	→	Cancer	Diabetes
10	F	51	270	205 T	0	Yes	0	None	....	Diabetes
11	F	52	260	510 (1948)	4+	0	0	Vision failing	....	Diabetes
12	M	57	243	123	1+	Yes	0	None	....	Glycosuria, diabetes questioned
13	F	59	350 C	260	4+	Yes	0	None	....	Diabetes
14	M	86	229 at 1 hr.		...	....	....	→	Cerebrovascular accident, arteriosclerotic heart disease	Diabetes
15	F	66	229 at 3 hr.		...	....	....	→	Myocardial insufficiency, chronic cystitis, diabetes	Diabetes
16	M	81	190 at 2 hr.		...	....	....	→	Arteriosclerosis, coronary heart disease	Diabetes confirmed in 1948
17	M	54	195	241 T	3+	Yes	0	None	....	Diabetes
18	F	59	200	194	2+	Yes	0	None	....	Diabetes
19	M	60	190	...	...	Yes	0	None	....	Physician confirmed diabetes
20	M	58	190	205	0	0	0	Arthritis, varicose veins	....	Diabetes
21	F	61	175	146 F	2+	Yes	0	None	....	Confirmed in 1948, diabetes
22	F	97	290 CT	...	1+	0	0	Complications of old age	....	Confirmed in 1948, diabetes
23	M	74	251	...	...	....	....	→	Cause of death unknown, moved	Diabetes
24	M	46	235	211	4+	0	0	None	....	Diabetes
25	M	59	295	286	3+	Yes	0	None	....	Diabetes
26	F	55	270	...	...	....	....	None	....	Diabetes; moved
27	F	86	200	...	...	....	....	→	Arteriosclerotic heart disease, blind at death	Diabetes
28	F	73	340 C	300	3+	Yes	Yes	None	....	Diabetes
29	F	43	243	222	3+	Yes	0	None	....	Diabetes
30	F	40	180	283	4+	Yes	0	None	....	Diabetes

* *Unless otherwise stated, highest postprandial blood sugar readings are shown, determined by venous Folin-Wu method: C = capillary blood, determined by Folin-Malmros; T = highest reading on glucose tolerance test, unless otherwise stated; and F = fasting blood sugar.*

For the sake of consistency in comparing results, the diagnostic standards of the original study were used—over 170 mg. per 100 cc. on venous blood (Folin-Wu) or over 200 mg. per 100 cc. on capillary blood (Folin-Malmros), confirmed by the analysis of a second specimen. In one case postprandial blood was not obtained and a confirmed fasting Folin-Wu test of over 130 mg. per 100 cc. was accepted as diagnostic. In the original study all patients with questionable or borderline cases had been given a standard oral glucose tolerance test, in which attention had been paid primarily to the height of the curve. In the current follow-up, however, attention was paid to both the height and duration of the curve. Occasionally a diagnosis was considered justifiable on the basis of a single very high postprandial blood sugar test when confirmed by the analysis of a second postprandial specimen.[6]

COURSE OF THE DISEASE IN THIRTY PREVIOUSLY UNKNOWN AND FORTY KNOWN DIABETICS

In the four year progress study the first problem was to determine the validity of the original classification of patients (table 1). Forty-seven of the total of 70 persons classified as diabetics in 1946-1947 were living in 1950-1951 and showed evidence of diabetes. Another seven now living would have questionable diagnoses on the basis of current laboratory data, if the past evidence of diabetes were not available. Therefore, they are designated in table 1 as diabetes questioned. Sixteen of the 70 have died, 15 of whom were considered diabetic and 1 of whom had hyperglycemia and glycosuria that might possibly have been related to gastrectomy one year prior to the 1946 survey, history of which was obtained subsequently. Deserving of special comment are the eight cases in which the original classification of diabetes may now be questioned (three newly discovered and five previously known; seven living and one dead).

---

[6] Diabetes Guide Book for the Physicians, New York, American Diabetes Association, Inc., 1950.

In most of the group of 30 who were newly diagnosed in 1946-1947 on the basis of laboratory findings and confirmation by their attending physicians (table 2), the classification of diabetes has been borne out in the progress study. For a summary of three exceptions, see cases 1, 7, and 12. In the original survey, the patient in case 1 had been considered to have borderline or very early diabetes, which should have been followed. His one hour venous blood sugar tolerance peak had been 190 mg. per 100 cc., with a drop to 128 after two hours. In 1948, he had a similar glucose tolerance curve with glycosuria, but in 1950-1951 he had a normal curve with glycosuria. He has never been overweight and did not develop any signs of frank diabetes in four years. His paternal grandmother died of diabetes. In case 7, the response to the original glucose tolerance studies in 1946 had been a one hour blood sugar peak of 260 mg. per 100 cc. plus glycosuria, with a decrease to 150 mg. per

TABLE 3.—*Course of Disease in Forty Diabetics Known Prior to 1946-1947 Survey*

Case No.	Sex	Age in 1950 or at Death	Blood Sugar [*] in Mg. per 100 Cc.		Glycosuria, 1950	Control, 1950		Serious Illness Reported	Cause of Death	Disposition
			1946	1950		Diet	Insulin, Units			
31	F	32	260	...	...	Yes	30 NPH [†]	Unknown	....	Diabetes, (patient and physician confirmed diagnosis)
32	F	44	235	318	4+	Yes	16 PZI [‡] 5R [§]	None	....	Diabetes
33	M	73	180	194	4+	Yes	16 PZI	Carcinoma, colostomy	....	Diabetes
34	M	82	170	305	3+	Yes	40 PZI	None	....	Diabetes
35	F	75	220	305	4+	Yes	0	Arthritis	....	Diabetes
36	M	57	200	140	3+	Yes	40 PZI 15R	Coma, amputation of foot (gangrene)	....	Diabetes
37	M	36	132	87 (1948)	0	Yes	0	None	....	Diabetes, questioned by laboratory data
38	F	61	208	...	...	....	....	....	Cancer, diabetes	Diabetes
39	F	56	170	274	4+	Yes	14 PZI	Gallbladder disease	....	Diabetes
40	F	73	157	143	0	0	0	None	....	Diabetes, questioned hyperthyroidism
41	F	81	253	320 C (1948)	4+	Yes	0	Tuberculosis	....	Diabetes
42	F	62	260	...	...	....	....	....	Moved, cause of death unknown	Diabetes, confirmed in 1948
43	M	53	170 C	141	0	0	0	....	....	Diabetes, questioned by laboratory data
44	M	49	...	322	4+	Yes	20 PZI	None	....	Diabetes
45	F	69	132 at 2 hr.		...	....	....	....	Cancer, nephrosclerosis	Diabetes, confirmed by physician
46	F	57	350 C	247	1+	Yes	0	Vision failing	....	Diabetes
47	M	54	94	...	...	Yes	0	None	....	Diabetes, moved, given insulin in 1946
48	F	64	300	...	...	....	....	....	Diabetic acidosis, nephrosclerosis, arteriosclerotic heart disease	Diabetes
49	F	63	285	...	...	....	....	....	Chronic nephritis, diabetes, uremia, arteriosclerosis	Diabetes
50	F	49	248	305	4+	Yes	15 PZI	Heart attack	....	Diabetes
51	F	46	125	162	2+	Yes	0	None	....	Diabetes
52	M	72	158	...	...	....	....	....	Cancer	Diabetes
53	F	71	115	140	0	0	0	....	....	Diabetes, questioned by laboratory data
54	F	62	315	183 (1948)	...	Yes	86 PZI 4R	Amputation of toe (gangrene)	....	Diabetes
55	F	52	290	355	4+	Yes	0	Impaired vision	....	Diabetes
56	M	79	170	451	4+	Yes	0	None	....	Diabetes
57	M	78	200	...	...	....	....	....	Coronary thrombosis	Diabetes
58	M	78	243 at 3 hr.		...	....	....	....	Coronary thrombosis	Diabetes
59	F	75	270	224	4+	Yes	28 PZI 20R	Coronary heart disease	....	Diabetes
60	F	50	110 C	109	0	Yes	0	....	....	Diabetes, questioned by laboratory data
61	M	73	243	146	0	Yes	20 PZI	None	....	Diabetes
62	F	64	105 C	146	0	Yes	0	Cerebrovascular hemiplegia	....	Diabetes, confirmed by physician
63	M	42	248	170	0	Yes	25 PZI 5R	Blind (duration of *diabetes mellitus*, 28 yr.)	....	Diabetes
64	F	71	135 C	343	4+	Yes	0	Impaired vision, neuritis	....	Diabetes
65	F	55	280	188 (1948)	...	Yes	10 PZI (1948)	....	....	Diabetes, moved, confirmed in 1948
66	F	63	208	382	3+	?	20 PZI	Kidney disease, cataract	....	Diabetes
67	M	44	94	286	4+	0	36 PZI	None	....	*Diabetes*
68	F	48	No tests in survey laboratory						....	Diabetes, moved, confirmed by physician
69	F	73	110	143	0	Yes	10 PZI	None	....	Diabetes
70	F	23	270 (1948)	309	4+	Yes	34 PZI 15R	2 spontaneous abortions	....	Diabetes

---

[*] Highest postprandial blood sugar readings are shown, determined by venous Folin-Wu method. Those noted as C are capillary, determined by Folin-Malmros.

[†] NPH = modified protamine insulin.

[‡] PZI = protamine zinc insulin.

[§] R = regular insulin.

100 cc. in two hours, and a drop to 74 mg. per 100 cc. in three hours. Subsequent inquiries disclosed that some time prior to the original test, the patient had had a subtotal gastrectomy. These findings suggest the possibility of a "dumping syndrome," as described by Custer, Butt, and Waugh[7] and others. This patient died of coronary heart disease in 1948 at 53 years of age. In spite of the possibility that rapid intestinal absorption accounted for the diabetes picture, we believe he had a mild case of diabetes. In case 12, 20 lb. (9.1 kg.) of weight were lost in the four year interval. On the basis of laboratory tests alone, a classification of diabetes was not justified in 1948 or in 1950. Weight reduction, particularly in a person with mild diabetes, can result in the disappearance of symptoms and signs of the disease.

For each of the 40 cases in which diabetes had been diagnosed prior to 1946 (table 3), an attempt was made to confirm the patient's history of diabetes with his physician. In 5 of these 40 cases (37, 40, 43, 53, and 60) neither laboratory data in 1946-1947 nor progress data in 1950-1951 confirmed the original classification of diabetes, which had been made on the basis of medical history and confirmation of family physician. In three of the five cases, the original reported history of diabetes was of considerable duration, varying from 10 to 20 years.

It is interesting to note that the follow-up study revealed, through the search of death certificates, that at least three other diabetics, heretofore unknown to the investigators, had been under treatment in Oxford at the time of the original survey. These were clear-cut cases of diabetes, in which the patients had been given insulin and had diabetes listed on their death records. One other known diabetic came to our attention only recently, when he had a leg amputated. These four persons had not been listed as known diabetics in the original survey.

On the basis of the follow-up study in Oxford, on the whole, the original classification of diabetics seems justified. In the eight cases cited, the diagnosis of diabetes may currently be questioned on the basis of laboratory tests; however, we agree with a group of medical consultants who emphasize that at one time these eight have been diagnosed as diabetic by their family physicians and those now living might well be mild diabetics in remission.

DEATHS AMONG DIABETICS

Of the 70 diabetics listed in the original survey in 1946-1947, at least 62 were still considered to be diabetics in 1950-1951 (table 1). In the four year interval, 15 of this group had died, leaving 47 of the original group alive. Seven of the 15 deaths occurred among the diabetics newly discovered in 1946-1947, and 8 among the group discovered previously. According to age at time of death, mortality had occurred as follows: Of the 15 persons from age 55 to 64, 5 had died; of 11 aged 65 to 74, 4 had died; of 11 attaining age 75 or over, 6 had died. An estimated annual death rate for the group aged 55 to 74 would be 86.5 deaths per 1,000 per year, which is considerably higher than the general mortality experience for the state of Massachusetts, which was 29.7 for that age group. The average age at death for the total group of diabetics was 72: 76 for the group discovered in the original survey, and 68 for those previously known.

As to the cause of death, two died at about age 64 with diabetes and kidney disease, one of them in diabetic acidosis. Five deaths were due to cancer and two with associated kidney disease. Three deaths were attributed to coronary heart disease and two to other forms of heart disease. One death was due to cerebrovascular accident. Two deaths occurred outside the area, and the cause has not been obtained. Diabetes was listed on only 4 of the 13 death certificates available for study. Some form of arteriosclerosis was named on six certificates.

CHARACTERISTICS OF GROUP LIVING WITH DIABETES DURING FOUR YEAR PERIOD

It was possible to study the 47 diabetics classified in the 1946-1947 survey who were living in or near Oxford in 1950-1951. As can be seen from table 4, 27 of the group, or about 57%, were aged 45 to 64 years. Several factors were recorded on the interim history or under laboratory data in order to indicate in some degree the control maintained. A history was taken of any serious illnesses or complications of diabetes, such as acidosis, gangrene, blindness, cataract, glomerulosclerosis, or gallbladder disease. Physical examinations were not done, and this limited the completeness of the data. Details of the findings for individual cases are presented in tables 2 and 3.

TABLE 4.—*Age Distribution in 1950 of Forty-Seven Diabetics from Original Survey*

Age Group	Total	Discovered During Survey	Known Prior to Survey
Total	47	20	27
20 to 44	8	3	5
45 to 64	27	14	13
65 to 74	6	2	4
75 and over	6	1	5

Methods of Control.—Information was obtained from the 20 living patients who had been newly discovered in 1946-1947 as to whether they were under treatment with insulin and/or diet. Five of the group reported no attempt at control by either diet or insulin. In all of these the laboratory results indicated blood sugar above 200 mg. per 100 cc. Glycosuria was present in all but one. Twelve reported some limited adherence to diet without insulin, although the diet history was not obtainable in detail. Only two of the group were given insulin therapy along with diet therapy. Reliable information could not be obtained from one person, but it was thought that no effort was being made to maintain control. Among the 27 old cases remaining from the group diagnosed prior to 1946, some degree of control was reported by more patients than in the newly discovered group. All, in fact, reported some type of control. Nine reported dietary control only; 2 reported they were given insulin without any particular dietary control; and 14 had both diet and insulin. In two cases reliable information was not available.

Glycosuria and Blood Sugar Results.—Glycosuria was a common finding among the diabetics in the progress study. Thirty-three out of the 40 tested (or 83%) had some degree of glycosuria. Glycosuria was equally common among both the previously discovered and the newly discovered group. If it had been practical to collect 24 hour urine specimens, it is thought that glycosuria would have been present in every case. There were available for study 35 comparable postprandial blood sugar determinations for 1946-1947 and 1950-1951 in the group of 47 diabetics studied. There was interest in the level of blood sugar maintained and any significant changes since the original survey. The correlation of 1950-1951 blood sugar levels to those of the original study is shown in table 5. In 1946-1947, 9 had blood sugar readings above 250 mg. per 100 cc.; in 1950-1951, 16 had blood sugar readings this high. Since 1946, 13 of the diabetics studied have shown a marked increase in blood sugar readings, 14 have the same range of blood sugar, and 8 have shown a decrease. Those showing marked increases in blood sugar readings were almost all among the previously known group, and the newly discovered group have generally the same blood sugar distribution as in the original study.

---

[7] Custer, M. D., Jr.; Butt, H. R., and Waugh, J. M.: So-Called "Dumping Syndrome" After Subtotal Gastrectomy: Clinical Study, Ann. Surg. **123**: 410 (March) 1946.

Serious Illness.—A history was recorded regarding serious illness and hospitalization occurring between the original survey and the follow-up period. Only five, 25%, of the 20 in the newly discovered group reported serious illness in the interim period. These include one case each reporting kidney disease, heart disease, failing vision, arthritis, and debility of old age. From the data collected, the relation of these conditions to diabetes cannot be postulated. It is significant that 15, 75%, of these newly discovered patients, reported no serious illness. The history of serious illness was much commoner among the 27 in the previously known group. Fourteen, or about 52%, of them reported some type of serious illness. Two reported amputations due to gangrene; one was blind as a result of diabetes of 28 years' duration; three others reported failing vision, and one a diabetic cataract as well as kidney disease. One young woman with moderately severe diabetes under treatment with both insulin and diet reported two spontaneous abortions. Other illnesses reported are listed in table 3. Only 10, or about 37%, of the diabetics in the previously known group reported no serious illness. In three cases, or 11%, the history of illness was incomplete.

TABLE 5.—*Venous Folin-Wu Postprandial Blood Sugar Readings of Thirty-Five Diabetics*

	Blood Sugar in Mg. per 100 Cc., 1946-1947	Blood Sugar in Mg. per 100 Cc., 1950-1951				
		Below 170	170 to 199	200 to 219	250 to 299	300 and Over
Total	35	6	6	7	5	11
Below 170	5	3	..	..	1	1
170-199	10	1	5	..	2	2
200-219	11	2	1	4	..	4
250-299	6	..	..	2	1	3
300 and above	3	..	..	1	1	1

The information on these cases is not complete enough to evaluate precisely their physical condition and to relate these findings to the degree of control of their diabetes; however, a general description of the health problem created by diabetes in a small community can be drawn from the study. The diabetics are chiefly a middle-age group, with some in the older age brackets. Their life expectancy is less than that of the average person. Judging from laboratory findings, glycosuria is quite common and about half of the diabetics have markedly elevated blood sugar readings, indicating a lack of control. The commonest method of control was diet, with more than one-third of the patients being given insulin too. Many of these patients, particularly those with diabetes of long duration, have serious illnesses, some of which are undoubtedly related to diabetes. This is acknowledged to be only a part of the picture of diabetes morbidity and its sequelae as they affect the community.

BLOOD SUGAR SUSPECT GROUP AND CONTROL GROUP

In the original survey the screening level, i.e., the level above which blood sugar readings were considered suspicious of diabetes, was 160 mg. per 100 cc. by venous Folin-Wu method, or 190 mg. per 100 cc. by capillary Folin-Malmros method. About 3% of the total number of persons examined from one to one and one-half hours postprandially fell above this point. If we go a little lower down the blood sugar scale to 140 mg. per 100 cc. with venous or 170 mg. per 100 cc. with capillary blood, about 8% of the group will be screened out. In this borderline group with blood sugar above 140 mg. in venous or 170 mg. *in capillary blood per 100 cc., but not* satisfying the diagnostic criteria, we suspected that more diabetics would have developed in the four year interim period than among those with lower blood sugar levels. The answer to this problem might give some clue to the prediabetic state, or at least indicate a group that should be reexamined periodically. In this report this group is arbitrarily called the blood sugar suspect group. In addition to the persons classified as diabetics in the original survey, therefore, the persons who had had borderline or relatively higher than normal blood sugar levels in 1946-1947, but who were not diagnosed as diabetic, were studied.

There were 161 persons who had had blood sugar readings above 140 mg. per 100 cc. by venous Folin-Wu or above 170 mg. per 100 cc. by capillary Folin-Malmros, but had not met the diagnostic criteria of the survey. About a third of these had been reexamined in 1946-1947, as they had had readings above the screening level but had been considered nondiabetic by subsequent tests. Of the original 161 persons, 43 were inaccessible in 1950-1951, 18 having died and most of the remainder having moved away. The remaining 118 were examined by means of blood and urine sugar tests. The routine procedure has been described under methods.

As a control group with which to compare the blood sugar suspect group, a sample of 294 was selected from the 3,277 persons in the original survey with venous blood sugar readings below 140 mg. per 100 cc. or capillary blood sugar readings below 170 mg. per 100 cc. This sample was selected so as to conform with the age and sex distribution of the suspect group. In the follow-up, we were able to test 225 of these for diabetes, since 24 had died and the remainder had moved or were not available. The age distribution of the two groups is quite close, although not exactly matched after the loss of persons who died or moved. The control group has 8% more persons 45 to 54 years of age and 4% fewer persons 35 to 44 years old. These differences render the conclusions conservative, since it is generally conceded that diabetes becomes more recognizable in persons over 45. Both the blood sugar suspect group and the control group have an equal distribution of men and women.

In the blood sugar suspect group as well as in the control group, about 83% of those selected to be studied were given laboratory tests. As a result of testing 118 persons with relatively high blood sugar readings, 17 diabetics were discovered, or 14.4%. In the control group of 225 persons, 4 diabetics were found, or 1.8% (table 6). The difference between the percentage of diabetics in the blood sugar suspect group and the percentage of diabetics in the control group is significant, since this difference might occur by chance alone less than once in 1,000 times.

Table 6.—*Results of Diabetes Examinations, by Age, in a Blood Sugar Suspect Group and a Control Group**

	Suspect Group			Control Group		
	No. of Persons	Diabetics		No. of Persons	Diabetics	
Age in 1950	Examined	No.	%	Examined	No.	%
All ages	118	17	14.4	225	4	1.8
Under 35	35	..	....	65	..	...
35-44	20	3	15.0	29	..	...
45-54	18	5	27.8	52	..	...
55-64	23	5	21.7	39	3	7.7
65 and over	22	4	18.2	40	1	2.5

* The suspect group includes persons who had in the original survey blood sugar readings above 140 mg. per 100 cc. venous or 170 mg. per 100 cc. capillary. In the control group the readings in original survey were below these values.

Particularly notable were three young persons, two men and one woman, aged 35, 36, and 35, respectively, who had had readings around 140 mg. per 100 cc. in 1946-1947 and who were now diabetics. The percentage of diabetics among persons over age 35 was 20.5 in the suspect group, as contrasted with 2.5 in the control group. The proportions of diabetics were higher in the suspect group than in the control group for both men and women.

Several different blood sugar levels from the 1946-1947 survey were studied in relation to later development of diabetes. Of the 161 with suspicious blood sugar results, about 80% had had levels in the first test in 1946-1947 below the diagnostic level (170 mg. per 100 cc. Folin-Wu or 200 mg. per 100 cc. Folin-Malmros). The remainder had shown hyperglycemia above these diagnostic levels that was not demonstrated again on tests repeated within a few days after the first test. Of the original 161 cases with suspicious blood sugar results, 36 had had capillary blood analysis. On follow-up of 25 of these, none proved to be diabetic; however, 72% of these were children under 20 years of age in whom diabetes is relatively uncommon. Of 125 persons with original suspicious venous determinations, 88 were successfully followed. When these persons are grouped on the basis of their original blood sugar readings (in 1946-1947), the following comparison can be made:

1946-1947 Venous Blood Sugar Reading (Mg. per 100 Cc.)	No. Examined	Diabetics in 1950-1951	
		No.	%
140-170	75	13	17.3
170-200	13	4	30.8
Total	88	17	19.3

It can be seen that the larger number of those studied (75) and most diabetics found (13) occurred in those persons in the suspect group who at no time reached the diagnostic level of 170 mg. per 100 cc. The percentage becoming diabetic was higher, as might be expected, among those few persons with definite hyperglycemia (170 to 200 mg. per 100 cc.) on first test alone, which was not confirmed on recheck. These findings in the suspect group are consistent with a recent statement of Lukens[8] that he has become suspicious of any blood sugar value above 140 after meals, although a single report at such a level does not warrant the diagnosis of diabetes.

GLYCOSURIA STUDY GROUP

In the original report[1] the following statement was made: "Tentatively 17 subjects were considered as having unclassified glycosuria, because of persisting glycosuria in the absence of hyperglycemia. It is believed that 7 of these persons may become diabetic because of widely fluctuating blood sugar levels." At that time these cases were not thought to fit the so-called renal glycosuria classification because their laboratory findings were too variable. In the follow-up study of the group with unclassified glycosuria, four persons were found to be diabetic (three of these had been among the suspicious seven in 1946-1947). Six continued to show glycosuria without accompanying hyperglycemia, five showed no laboratory signs of diabetes, and two died. In the original survey, 9 of the 17 with persistent glycosuria had blood sugar readings above 140 mg. per 100 cc. venous and were therefore included with the blood sugar suspect group. Of these nine persons, three had become diabetic in 1950 and two continued to show glycosuria. Of the 17 with persistent glycosuria, 8 had had blood sugar readings below 140 mg. per 100 cc. on original survey. One of these persons had become diabetic in 1950, while four continued to show glycosuria.

CRITERIA OF DIAGNOSIS IN FOLLOW-UP STUDY

As has been noted, in order to obtain comparable results the criteria used in the follow-up study were the same as those used in the original survey. However, glucose tolerance tests (table 7) for 13 of the 22 diabetics discovered since 1946-1947 have been carefully studied in relation to current criteria for diabetes. According to the criteria of the American Diabetes Association,[6] diabetes is present when the blood sugar is above the following levels (venous Folin-Wu): 200 mg. per 100 cc. after eating and 130 fasting. They emphasize that the fasting blood sugar may be normal in early diabetes.

In the series of 13, all except 4 patients had above 200 mg. per 100 cc. blood sugar levels at one hour. Of the four exceptions three had about 190 mg. per 100 cc. at that point and one had 174 mg. per 100 cc.; however, at the fasting reading, the majority of the diabetics, 9 out of 13, had readings well below 130 mg. per 100 cc. At the three hour reading, 5 of the 13 were below 130 mg. per 100 cc.

The elevated two hour reading on glucose tolerance test has been considered by many observers as the key figure in diagnosis of diabetes. Recently Moyer[9] has recommended 150 mg. per 100 cc. at two hours as indicative of diabetes, and this criterion appears reasonable. All of the diabetics in this series were above 150 mg. per 100 cc. at two hours with one exception, who was only slightly below. All of the persons classified as diabetic demonstrated glycosuria repeatedly, the one exception being a woman of 80 years. Comparison of the glucose tolerance findings in this series with criteria recommended by the American Diabetes Association and other authorities shows close agreement. The classification of diabetes in these cases, it is believed, would be generally accepted.

---

[8] Lukens, F. D. W.: Proper Use of Laboratory Tests in Diagnosis and Management of Diabetes, Diabetes 1: 13 (Jan.-Feb.) 1952.

TABLE 7.—*Pertinent Data and Laboratory Findings for Twenty-Two Diabetics Discovered in Progress Study*

				Progress Study									
						Glucose Tolerance Test							
						Blood Sugar				Urine Sugar			
Case No.	Sex	Age in 1950	First Survey Post-prandial Blood Sugar	Post-prandial Blood Sugar	Post-prandial Urine Sugar	Fasting	1 Hr.	2 Hr.	3 Hr.	Fasting	1 Hr.	2 Hr.	3 Hr.
Blood Sugar Suspect Group													
71	M	35	140	146	Trace	92	217	150	90	0	4+	3+	Trace
72	F	35	145	191	+	129	254	254	186	Trace	2+	3+	3+
73 *	M	49	154	148	Normal	...	...	...	...	......	......	......	......
74	M	68	170	169	Trace	105	234	198	137	0	1+	2+	1+
75 *	M	58	162	...	......	...	...	...	...	......	......	......	......
76	F	49	142	333	4+	...	...	...	...	......	......	......	......
77 *	M	48	170	192	2+	...	...	...	...	......	......	......	......
78	F	80	142	166	Normal	107	194	169	143	0	0	0	0
79	M	68	154	166	3+	111	191	169	104	1+	3+	4+	4+
80	F	54	150	250	3+	169	314	348	309	0	3+	4+	1+
81	M	77	162	174	Normal	119	283	171	113	0	Trace	4+	2+
82 *	F	58	170	152	Normal	...	...	...	...	......	......	......	......
83	F	53	145	186	Normal	133	248	301	191	0	3+	4+	4+
84	M	56	180	307	4+	...	...	...	...	......	......	......	......
85	M	57	154	176	Normal	121	283	231	150	3+	4+	4+	4+
86	M	36	142	154	Trace	100	189	146	121	0	Trace	Trace	0
87	M	62	165	211	2+	113	296	211	137	1+	4+	4+	3+
Glycosuria Suspect Group													
75 (See above group)													
77 (See above group)													
79 (See above group)													
88	M	48	135	258	4+	...	...	...	...	......	......	......	......
Control Group													
89	F	72	128	495	4+	...	...	...	...	......	......	......	......
90	M	56	125	141	3+	91	174	178	169	Trace	3+	4+	3+
91	M	61	75	150	4+	137	234	159	86	0	2+	4+	3+
92 *	M	55	132	222	3+	...	...	...	...	......	......	......	......

* Diagnosed by private physician between 1946 and 1950. In all cases starred, except 77, insulin was given. All blood sugar determinations are venous Folin-Wu.

COMMENT

Of concern and importance in the detection, diagnosis, and management of diabetes are those patients who have been shunted aside or not thoroughly followed because they have "a little sugar in the urine" or blood sugar "a little higher than normal." Our findings tend to indicate that these are the future diabetics. Whatever preventive measures are available to the medical armamentarium could be best focused on these cases of near diabetes. It should be emphasized that case finding can never be an end in itself. It is effective only when combined with follow-up, patient education, and attainment of adequate treatment through the earnest teamwork of the physician and his patient. "From the preventive aspect, of primary importance . . . is the actual determination of whether or not early treatment will lead to a lessening of the severity of the disease, increased ease of control, and facilitate the prevention of complications."[10]

There is a need to determine a widely acceptable clinical definition of diabetes control. More definitive study is necessary to determine the prognosis in relation to the various degrees of such control. We recognize the great importance of attempting to relate the control of diabetes in the individual person and in the community to the control of either mortality or the development of complications, but we also realize that the amount and scope of our data are inadequate up to this time. Our current efforts in diabetes epidemiological studies are directed, therefore, toward the procuring of sufficient data to bridge some of the gaps in our knowledge of detection and control factors in diabetes.

SUMMARY

A four year diabetes follow-up study was made in Oxford, Mass., in 1950-1951 of the following groups selected from those persons tested for diabetes in the original 1946-1947 survey: 70 diabetics identified in 1946-1947; a blood sugar suspect group of 118 with

---

[9] Moyer, J. H., and Womack, C.: Glucose Tolerance: II. Evaluation of Glucose Tolerance in Liver Disease and Comparison of Relative Value of 3 Types of Tolerance Tests, Am. J. M. Sc. **216**: 446 (Oct.) 1948.

[10] Commission on Chronic Illness, *Proceedings of the Conference on the Preventive Aspects of Chronic Disease*, March 12-14, 1951, Raleigh, N. C., Health Publications Institute, Inc., 1952, p. 216.

borderline or relatively higher than normal blood sugar readings in the original survey; a control group of 225 with average or normal blood sugar readings in the original survey; and a suspect group of 17 with repeated glycosuria. The purposes of the study were to investigate the diabetic status and general health of the diabetics seen in the original survey, verify the cases of diabetes first observed, and investigate the incidence of diabetes in the interim period among a suspect group selected on the basis of relatively high blood sugar readings.

The method of the study was to obtain postprandial blood and urine sugar analyses, and glucose tolerance tests when necessary. Also an interim history of diabetes and general health was recorded. In 62 of the 70 diabetics observed in the original survey, the classification of diabetes was justified on follow-up. In seven of the other eight cases currently failing to meet criteria for diabetes, there exists the possibility of remission of mild diabetes, but they are subject to question. In one patient, now dead, we believe mild diabetes was present, but the possibility exists of a "dumping syndrome." There were found to be at least four known diabetics living in Oxford at the time of the original survey who had not been listed in the first study. Of the original group of 70 diabetics, 16 have died. The death rate for the age group 55 to 74 years is higher than general mortality experience for that group.

For the 47 in the original group of diabetics who were still living, a study was made of the method of control of diabetes, glycosuria and blood sugar results, and serious illness or diabetic complications. These findings emphasize the original conclusion that there is a need in the community for improved control in the diabetics. The blood sugar suspect group studied was comprised of 118 persons with blood sugar readings in the original survey above 140 mg. per 100 cc. (venous) or 170 (capillary); the control group was made up of 225 persons with original blood sugar readings below these values. In the blood sugar suspect group, 17 diabetics were discovered, or 14.4%; in the control group, 4 diabetics were discovered, or 1.8%. The high incidence of diabetes in the blood sugar suspect group suggests that persons with relatively high but not diagnostic blood sugar levels should be periodically followed. The findings indicate that it is likelier that diabetes develops in such persons than in persons with average or normal blood sugars. Among a group of 17 persons with unclassified glycosuria in the original survey, 4 have become diabetic in the four year interval. (Of these diabetics, three were included also in the blood sugar suspect group.) This suggests that the allegedly harmless glycosurias may often hide incipient diabetes.

At the time of the four year follow-up study, 69 living diabetics in Oxford were known to the investigators. The general picture is that most of those who had diabetes still have the disease, which has progressed since the 1947 study. Some of the severest degenerative sequelae appeared to be present in the patients with the poorest degree of control, although this is not definitely proved at this time. More detailed follow-up studies continue on all groups described.

639 Huntington Ave. (Dr. Wilkerson).

CLINICAL NOTES

ACUTE PSYCHOSIS AS A COMPLICATION OF HYDRALAZINE THERAPY IN ESSENTIAL HYPERTENSION

Capt. Marvin Moser (MC), U.S.A.F.
Capt. James Syner
Capt. Sidney Malitz
and
Col. Thomas W. Mattingly, (MC), U. S. Army,
Washington, D. C.

Considerable publicity has recently been given to the newer hypotensive agents. The most promising of these drugs, hexamethonium, a ganglionic blocking agent, and hydralazine (Apresoline) hydrochloride, a sympathetic blocking agent with other complex actions, are now being used extensively in treatment of patients with essential hypertension.[1] A third compound, Dibenzyline (N-phenoxyisopropyl-N-benzyl-β-chloroethylamine) hydrochloride is an orally effective, sympathetic blocking agent that produces a fall in blood pressure when the patient is in an upright position, and is capable of preventing wide fluctuations in pressure as well as relieving symptoms.[2] All of these drugs may produce severe reactions if they are not used under controlled conditions. Grimson and his associates [3] and Schroeder [4] have recently published reports advising caution in the use of these drugs.

We have encountered numerous side-reactions of these three drugs, used either alone or in combination, in a group of carefully selected patients being treated for essential hypertension. Dibenzyline produced severe fatigue, marked persistent tachycardia, postural hypotension, persistent stuffy nose, and aspermia in several patients. In some patients hexamethonium administered orally or parenterally resulted in severe postural hypotension and syncope, difficult urination, constipation, and persistent blurring of vision. Marked tachycardia, headaches, vague muscle and joint pains, aspermia, nausea, and periorbital edema were experienced by

---

From the Cardiovascular-Renal Section, Medical Service, and Neuropsychiatric Division, Army Medical Service Graduate School, Walter Reed Army Medical Center.

The hexamethonium used in this study was supplied by E. R. Squibb Co., New York; the Dibenzyline by Smith, Kline and French Laboratories, Philadelphia; the hydralazine (Apresoline) by Ciba Pharmaceutical Co., Summit, N. J.; and hexamethonium chloride (Methium) by the Chilcott Laboratories, Morris Plains, N. J.

[1] Schroeder, H. A.: Effect of 1-Hydrazinophthalazine in Hypertension, Circulation **5**:28-37 (Jan.) 1952. Freis, E. D.; Finnerty, F. A., Jr.; Schnaper, H. W., and Johnson, R. L.: Treatment of Hypertension with Hexamethonium, ibid. **5**:20-27 (Jan.) 1952. Schroeder, H. A.: Control of Hypertension by Hexamethonium and 1-Hydrazinophthalazine: Preliminary Observations, A. M. A. Arch. Int. Med. **89**:523-540 (April) 1952. Campbell, A. J. M.; Graham, J. G., and Maxwell, R. D. H.: Treatment of Hypertension by Oral Methonium Compounds, Brit. M. J. **1**:251-261 (Feb. 2) 1952.

[2] Moser, M.; Walters, M.; Master, A. M.; Taymor, R. C., and Metraux, J.: Chemical Blockade of the Sympathetic Nervous System in Essential Hypertension, A. M. A. Arch. Int. Med. **89**:708-723 (May) 1952.

[3] Grimson, K. S.; Orgain, E. S.; Rowe, C. R., Jr., and Sieber, H. A.: Caution with Regard to Use of Hexamethonium and "Apresoline," J. A. M. A. **149**:215-220 (May 17) 1952.

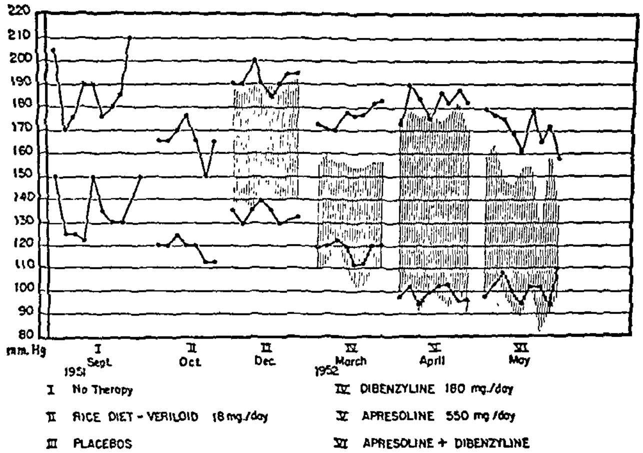
[4] Schroeder, H. A.: New Antihypertension Drugs, correspondence, J. A. M. A. **149**:297 (May 17) 1952.

patients receiving hydralazine therapy. In addition, two patients receiving hydralazine noted episodes of transient euphoria, three experienced attacks of nervousness, and one, the subject of this case report, experienced a severe psychotic episode.

REPORT OF A CASE

A 44-year-old white man had hypertension of 28 years' duration. He had enjoyed good health until June, 1951, when he suffered a thrombosis of a branch of the left middle cerebral artery, with right hemiparesis, facial weakness, and spastic aphasia. There was a gradual clearing of the facial weakness and speech difficulty. No intellectual or unusual emotional changes were associated with this cerebrovascular episode. His blood pressure at that time presented a daily average of 220/130 mm. Hg. In September, 1951, prior to transfer to Walter Reed General Hospital, the patient was given a regimen of 18 mg. per day of Veriloid, a drug containing the hypotensive ester alkaloids of veratrum viride, and a rice diet for 45 days. He experienced a sense of well-being and a lowering of blood pressure to average readings of 165/118 mm. Hg. Substitution of placebos resulted in a rapid return of blood pressure to 200/130 mm. Hg.

In January, 1952, after arrival at Walter Reed General Hospital, the patient was given Dibenzyline in doses of 20 mg. three times daily. Dosage was gradually increased to 180 to 200 mg. per day. Initial side-reactions of nasal congestion, palpitations, and lightheadedness in the upright position partially cleared in 7 to 10 days. A fall in blood pressure to a daily average of 176/116 mm. Hg in the recumbent position and 154/108 mm. Hg in the upright position was obtained, with occasional low readings of 130/80 mm. Hg. During this period there were no episodes suggestive of mental deterioration or emotional instability.



Response of the blood pressure to therapy. Each section represents a 7 to 10 day period after the blood pressure had been stabilized by a particular drug. Each point represents an average of four to six readings per day. Shaded areas represent blood pressure with the patient in an upright position. (Psychotic episode occurred during April.)

Initial blood cell counts and urinalyses were normal and remained so throughout the patient's hospitalization. Studies of renal function revealed no abnormalities on admission or when repeated weekly. Funduscopic examinations and photographs revealed arteriolar spasm and narrowing with several small hemorrhages, a grade 3 retinopathy. Weekly examinations revealed some clearing of the hemorrhages and disappearance of arteriolar spasm with continuation of treatment. Chest roentgenograms showed moderate left ventricular hypertrophy, and repeated electrocardiograms showed a persistent abnormality indicating left ventricular hypertrophy with myocardial ischemia.

After approximately one and one-half months of Dibenzyline therapy, there was partial tolerance of the drug, with a gradual increase in recumbent blood pressure levels to 190/120 mm. Hg. Postural changes persisted.

On March 30, therapy with hydralazine, 25 mg. four times daily, was begun. The daily dose was progressively increased to 550 mg. per day, with the blood pressure and clinical response as a guide. The patient complained of a slight headache, which disappeared by the fifth day. When the daily dose reached a total of 350 mg. on the seventh day of therapy, there was a definite, improved sense of well-being characterized by increased mental alertness, cheerfulness, desire to return to work, and feelings of extreme confidence and resourcefulness. Whereas the patient had previously been reserved and uncommunicative with ward personnel, he became friendly. At this time blood pressure averaged 170/95 mm. Hg, with no significant postural changes. No alteration in blood chemistry or renal function was noted. The patient was discharged from the hospital, and his wife was taught how to measure blood pressure and to vary the dosage of hydralazine accordingly.

On the 10th day of hydralazine therapy, the patient experienced a sudden mood of depression with an outburst of intense crying. He felt dejected and gloomy but could offer no explanation for his feelings. An interview on his return to the hospital produced no evidence that this was a reaction to an adequate external cause or to internal difficulties. Cessation of the depressive mood was immediately followed by a feeling of cheerfulness and happiness. A sense of well-being developed, with gradual evolution into a mild degree of maniacal excitement. The patient experienced fantasies of tremendous physical and mental potential. These feelings and mood swings continued on the 11th day of therapy, but were not as marked.

On the 12th day of treatment, the patient, who was on a dosage schedule of 550 mg. of hydralazine per day, inadvertently took 200 mg. before breakfast, instead of the usual 100 mg. Within an hour he was in a delusional state characterized by fantasies of intellectual genius and unlimited ability to solve problems and prognosticate world affairs. He also had fantasies of making tremendous profits through clever business manipulations. The patient had auditory hallucinations in which he heard his own voice talking and planning "from within his head." He felt that he was receiving "divine guidance" for his exploits. Judgment was profoundly impaired. He approached strangers and offered advice. He rejected all appeals to reason by his wife and grew angry and irritable when she attempted to correct his delusional impressions. Violent episodes of anger alternated with periods of intense crying. The patient later recalled that his thoughts flowed at such a tremendous pace that he was unable to keep up with all of them. Blood pressure readings at this time were 160/95 mm. Hg when the patient was in a recumbent position and 150/90 mm. Hg in the upright position.

Hydralazine administration was discontinued, and, within 8 to 12 hours, there was marked remission of symptoms and a return of the personality toward normal. Within 24 hours the patient was psychiatrically asymptomatic and completely rational. For the next month he was maintained on a combination of small doses of hydralazine, 100 to 150 mg. per day, and Dibenzyline, 80 to 120 mg. per day, with a satisfactory blood pressure effect, and remained free of any untoward emotional side-reactions. Medication was then changed to a combination of 2 gm. of hexamethonium chloride (Methium) administered orally and 200 mg. of hydralazine, because of the development of a partial tolerance of the Dibenzyline and hydralazine combination. The patient received the new medication for two months with a satisfactory blood pressure response. He appeared to be well adjusted except for occasional periods of depression.

About three months after his initial psychotic episode the patient experienced a complete breakdown. This followed a sudden feeling of inadequacy in performing routine assignments at his job. He became severely depressed and suicidal and was admitted to the psychiatric service for treatment. The patient remained depressed for several months and made little progress until he was given doses of insulin producing subcoma. His feelings of inadequacy extended to include relationships with his family and friends as well as his career activities. All drug therapy was stopped after the episode of depression, and recent blood pressure levels have averaged between 190/120 and 240/140 mm. Hg. During the entire period of observation the patient's urinary output was normal, and repeated renal function studies did not reveal any abnormalities. Neurological examinations were essentially normal.

COMMENT

A relationship between the first psychotic episode in this patient and a specific drug has been shown. The patient showed evidence of basic personality changes while receiving daily dosages of 350 mg. of hydralazine. Psychotic manifestations were noted when the total daily dose was increased to 550 mg. After the patient took a single large dose of 200 mg. of hydralazine by mistake an acute psychotic episode, characterized by manic type behavior, occurred. With cessation of the drug there was marked improvement in 12 hours and complete reversion to normal in 24 hours. This patient had been maintained with several other medicaments during four months of hospitalization and was not particularly sensitive to drugs. He had periods of acute hypotension while receiving Dibenzyline and for a brief period while he was being tested with parenterally administered hexamethonium, but he had not experienced emotional outbursts or aberrations. During the acute psychosis with hydralazine treatment, blood pressure was not unusually low. We felt, therefore, that the episode was not secondary to marked alterations in cerebral blood flow. Renal function and blood chemistry remained within normal limits. The psychotic episode apparently represented a manifestation of hydralazine overdosage. Since the progression of the personality changes was carefully observed and the relationship of drug administration to the psychosis was well established clinically, we did not feel that the occurrence was coincidental or that it was necessary to reproduce the severe symptoms by readministration of large doses of hydralazine.

Several months later the patient had a severe depressive reaction that required a prolonged psychiatric hospitalization. This reaction did not appear to be related to drug effect and was not altered by the withdrawal of all medication. It seemed to be closely related to serious unresolved personality problems, which may have been aggravated by the patient's continuing hypertensive cardiovascular disease; that is, his feelings of inadequacy may have been directly related to his illness and lack of ability to cope with problems that formerly would have been quite simple.

It is logical to assume that the initial psychotic episode might not have occurred in a stable person, despite an overdose of a potent drug that apparently has a "central" action. (We have observed another patient who inadvertently took 600 mg. of hydralazine in a single dose and experienced no unusual psychiatric manifestations.) The previous adjustment of our patient was a tenuous one because of unresolved personal problems, and he was, therefore, susceptible to a break with reality in stressful situations. Similarities between his psychiatric symptoms and those described as following withdrawal of cortisone and corticotropin are striking and consist of hallucinations, delusions, extreme variations in mood, ideational flight, and depressive states.[5] Apparently some potent pharmacological agents are capable of altering physiological mechanisms in areas of psychogenic responses and may embarrass or decompensate an already precarious stability. These agents should be used with care, and the physician should be constantly aware of the possibility of precipitating a "breakdown of defenses" with a resulting psychotic episode.

The occurrence of acute anxiety episodes in patients with poor renal function and uremia, and who were receiving hydralazine, has been noted by Schroeder.[4] These personality alterations usually did not occur or were transient in patients without renal disease. In our case, euphoria continued for a longer period than is expected in such conditions, and an episode of mania was produced by a large dose of hydralazine. It is possible that the patient's mental state would have gradually returned to normal, even though he was maintained on 500 to 550 mg. per day, if he had not taken the extra dose of the drug. The psychological manifestations noted in this patient during hydralazine therapy, as well as the euphoria that occurred in other patients with this therapy, may provide additional evidence that the drug affects the higher cerebral centers.

SUMMARY

A case of acute psychosis as a result of hydralazine (Apresoline) overdosage in a patient with essential hypertension is reported. This episode apparently was not related to change in blood pressure or to renal function. Clinical recovery followed in 12 to 24 hours after withdrawal of the drug. This episode may have resulted from a release of basic personality conflicts after the disease state had been altered by the drug. The subsequent severe prolonged depression that was unrelated to hydralazine therapy substantiates this explanation.

Although hydralazine is a useful agent for treatment of essential hypertension, its administration, especially in outpatients and in unstable persons, should be carefully controlled. It is suggested that administration of this drug, as well as other agents used in the treatment of hypertension, be discontinued or the dose reduced if personality changes occur.

5. Rome, H. P., and Braceland, F. J.: The Psychological Response to ACTH, Cortisone, Hydrocortisone, and Related Steroid Substances, Am. J. Psychiat. **108**: 641-651 (Feb.) 1952.

James Lind and the Treatment of Scurvy.—On completion of his medical apprenticeship in 1739, Lind entered the British navy as a surgeon's mate. . . . Up to Lind's time a number of books and papers had been written about scurvy, and in fact many had suggested the use of fruit juices for the prevention and treatment of the disease. It is to Lind's credit, and an example of his honesty and integrity, that in all of his writing he appreciated this fact and gave due recognition to the earlier observations. . . . In 1747, Lind carried out his experiment which proved conclusively that orange or lemon juice was a specific treatment for scurvy. . . . Not only did Lind demonstrate in a controlled experiment the importance of citrus juices in the treatment of scurvy, but his practical and inventive mind led him to develop an improved method for the preservation of citrus juice, a significant development in food technology. . . . Despite the excellence of Lind's results, his official position in the Royal Navy, and his detailed report in the "Treatise on the Scurvy" published in 1753, it was not until almost 50 years later (1795) that the Admiralty finally gave orders for the compulsory issue of lemon juice to all ships. This "perversity of officialism" and gross governmental inefficiency undoubtedly resulted in a loss of life from scurvy during this period greater than that from all other causes of seamen's deaths put together.—W. A. Krehl, James Lind, M.D. (October 6, 1716—July 18, 1794), *Journal of Nutrition*, May, 1953.

TELEPAQUE AND PSEUDOALBUMINURIA

E. E. Seedorf, M.D.
W. N. Powell, M.D.
R. G. Greenlee, M.D.
and
D. N. Dysart, M.D., Temple, Texas

Since the occurrence of pseudoalbuminuria after ingestion of iodoalphionic acid (Priodax) [1] and Monophen (2-[4-hydroxy-3,5-diiodobenzyl]-cyclohexane carboxylic acid) [2] was reported, another cholecystographic medium, Telepaque (3-[3-amino-2,4,6-triiodophenyl]-2-ethylpropanoic acid), has been employed successfully. Telepaque is a solid containing 66.68% iodine, while iodoalphionic acid contains 51.5% and Monophen 52.2% iodine. Experiments with animals at the Sterling-Winthrop Research Institute have shown that Telepaque, taken orally, is eliminated mainly by the gastrointestinal tract but to some extent by the kidneys.

As a fairly high incidence of pseudoalbuminuria was found after ingestion of iodoalphionic acid and Monophen,[2] study of Telepaque was undertaken to determine whether the small amount of this drug eliminated through the urinary tract was sufficient to cause pseudoalbuminuria. Chemical examination of the substance showed that it readily dissolved in water. When the solution was acidified, a flocculent precipitate appeared, and, when it was alkalized, the precipitate disappeared.

Over 100 patients received Telepaque, but only the first 100 (40 men and 60 women) to meet all the requirements were accepted for this study. Reasons for rejection were: the presence of albumin in the routine urinalysis before the medium was ingested; urine specimen not presented for examination before ingestion of the medium, the day after ingestion (day of gallbladder examination), and the day after the gallbladder examination; and menstruation.

The manner of administering Telepaque to the patients was similar to that used for the other cholecystographic mediums. Telepaque was given in four tablets, a total dosage of 2 gm. It had been established that this amount produced cholecystograms of as great or greater density than six tablets of iodoalphionic acid or six capsules of Monophen. As in the previous studies on iodoalphionic acid and Monophen, Exton's reagent, Heller's ring test, Robert's reagent, and nitric acid and heat were used to examine urine for the presence of albumin.

Table 1 shows the number and/or percentage of false positive reactions for albuminuria when hot Exton's reagent was used. This is the most significant portion of the table, as the Exton's test is the one most universally employed for the detection of albuminuria. Of the 100 patients, whose preliminary urinalyses showed no evidence of albumin, 15% had positive Exton's tests (pseudoalbuminuria) after the ingestion of Telepaque. This compares closely with the 14% incidence found with iodoalphionic acid and the 17% with Monophen in our earlier study.[2] Although the urine and Exton's reagent mixture should be observed while hot, it is interesting to note that when the result is read after the solution has cooled the incidence of positive results increases considerably.

A preliminary urinalysis negative for albumin with hot Exton's solution was obtained on all patients before any gallbladder medium was given; however, preliminary urinalyses with the other albumin-testing reagents were not obtained before the medium was given. In order to correctly evaluate these reagents we ran a control group of 100 urinalyses. The control patients received no gallbladder medium and their urine specimens were negative to the routine Exton's test. When the Exton's reagent was cool, a false positive result was observed in nine specimens. All were negative to Heller's test. The nitric acid and heat test gave a positive reaction in 20 specimens, and Robert's reagent showed 9 to be positive. *In our opinion Exton's reagent is the most selective test for true albuminuria.*

TABLE 1.—*Incidence of Pseudoalbuminuria Following Ingestion of Iodoalphionic Acid (Priodax), Monophen, and Telepaque**

Laboratory Test	Control Group with No Medium	% Positive with		
		Iodoalphionic Acid †	Monophen †	Telepaque
Exton's reagent (hot)..	0	14	17	15
Exton's reagent (cold).	9	60	65	43
Heller's ring test.......	0	10	10	1
HNO_3 and heat test...	20	43	39	36
Robert's reagent.......	9	72	82	15

* Each medium was given to a separate group of 100 patients.
† Studies of these mediums were previously reported.[2]

TABLE 2.—*Side-Reactions Following Ingestion of Iodoalphionic Acid (Priodax), Monophen, and Telepaque**

Side-Reaction	Iodoalphionic Acid †	Monophen †	Telepaque
Dysuria	48	23	29
Diarrhea	38	13	39
Abdominal cramps.................	21	19	29
Headache	21	27	29
Nausea	17	28	17
Dizziness	15	14	16
Allergic phenomena................	4	7	4
Visual disturbance.................	2	4	6
Vomiting	0	0	1
Miscellaneous reactions............	4	0	4

* Each medium was given to a separate group of 100 patients.
† Studies of these mediums were previously reported.[2]

In general, it can be said that some specimens from the control group were positive to the nitric acid and heat test and to Robert's reagent. Nevertheless, the incidence of positive reactions was greater after the ingestion of any of the three mediums. This indicates that all of the albumin-testing reagents are likely to produce some false positive reactions for albuminuria after the ingestion of these gallbladder mediums.

Iodoalphionic acid and Monophen are eliminated primarily by the urinary system,[3] while Telepaque is reported to be eliminated primarily by the gastrointesti-

---

Telepaque tablets for this study were donated by Winthrop-Stearns, Inc., New York.

From the Department of Radiology (Drs. Seedorf and Dysart), the Department of Clinical Pathology (Dr. Powell), and the Department of Medicine (Dr. Greenlee) of the Scott and White Clinic.

[1] Seedorf, E. E.; Powell, W. N.; Greenlee, R. G., and Hartman, J. T.: Priodax and Pseudoalbuminuria, Radiology **55**: 740-742 (Nov.) 1950.

[2] Seedorf, E. E.; Powell, W. N.; Greenlee, R. G., and Dysart, D. N.: Pseudo-Albuminuria Following Monophen and Priodax, Radiology **59**: 422-423 (Sept.) 1952.

[3] Modell, W.: The Pharmacology of β (3,5 Di-iodo-4-hydroxy-phenyl) α Phenyl Proprionic Acid, J. Lab. & Clin. Med. **27**: 1376-1384 (Aug.) 1942. Wasch, M. G., and Epstein, B. S.: Monophen: A New Medium for Oral Cholecystography, Am. J. Roentgenol. **66**: 98-102 (July) 1951.

nal tract.[4] We anticipated a reduced incidence of dysuria and an increased incidence of diarrhea with the use of Telepaque, but our results failed to support this assumption. In general, the frequency of side-reactions was relatively the same after the use of all three mediums.

In this study, as with iodoalphionic acid and Monophen, the presence or absence of pathological findings on the cholecystogram was not related to the occurrence of pseudoalbuminuria. The urine specimens of four patients continued to show presence of Telepaque for three days after ingestion, but were free of the drug on the fourth day. Apparently, because of the greater amount of dye in proportion to body weight, the incidence of pseudoalbuminuria was higher in the lighter weight patients.

As mentioned previously, only 2 gm. of Telepaque gave a gallbladder shadow of as great or greater density than 3 gm. of iodoalphionic acid or Monophen; 97 of the 100 cholecystograms showed normally functioning gallbladders, and 3 cholecystograms showed nonfunctioning gallbladders. Calculi were visualized on seven of the films showing normal function and on two of the films showing nonfunctioning gallbladders.

From extensive experience, we have established what we consider the average normal density of cholecystograms produced with iodoalphionic acid. In our series with Telepaque, we considered about one-half of the cholecystograms slightly to considerably denser than those produced with the other two mediums. The cystic duct was visualized in 10 patients; 9 had gallbladder shadows of increased density. Whereas, the denser gallbladder shadow produced by Telepaque has certain advantages, it may also produce too dense a shadow, obscuring gallstones. We have not encountered this difficulty with the dosage employed. Unlike the other two mediums, Telepaque is commonly seen in the gastrointestinal tract for two or three days after ingestion. It can usually be distinguished from gallstones when it overlies the gallbladder, but in 13 of our patients it was necessary to make that distinction. In our clinic, abdominal flat plates and lumbar spine roentgenograms are usually made after cholecystography. A residue of Telepaque was seen in 92 patients who had roentgenograms of the abdominal region after cholecystography, and occasionally, another film was necessary to exclude the possibility of urinary or other abdominal calculi.

SUMMARY

Since the incidence of pseudoalbuminuria is high enough to cause erroneous impressions, urinalyses taken on the day after and, occasionally, two or three days after cholecystography employing iodoalphionic acid (Priodax), Monophen (2-[4-hydroxy-3,5-diiodobenzyl]-cyclohexane carboxylic acid), or Telepaque (3-[3-amino-2,4,6-triiodophenyl]-2-ethylpropanoic acid) should be interpreted with caution. Side-reactions and their frequency were relatively the same after the use of all three mediums but were not severe enough to contraindicate use.

Good cholecystograms were produced by all three mediums. In our experience, a smaller dosage of Telepaque than of the other two mediums was advantageous. Undesirable results of the use of Telepaque were a residual deposit in the bowel and occasional interference with interpretation of renal or other calculi.

213 W. Avenue G.

---

[4] Hoppe, J. O.: Unpublished study in files of Sterling-Winthrop Research Institute.

METHOD AND MACHINE FOR RESUSCITATION OF THE NEWBORN

John Mann, M.D., Toronto, Canada

One of the objections to mechanical resuscitators in general is that in their use oxygen is applied to the infant by face mask without investigation of the condition of the airway. It is obvious that not only is any machine that is applied to a child who has an obstructed airway ineffective but the time loss due to airway obstruction may be fatal. The establishment and maintenance of a free airway is of first importance; without it no method can succeed. The entire respiratory tract must be cleared of obstructing fluid or mucus. Obstruction due to spasm of the glottis, if present, must be overcome. This condition may result from an irritating mucus plug or from certain types of anesthetic agents administered to the mother. Infants in the stage of flaccidity with collapsed glottic structures and absent reflexes may also have obstructed airways. Intubation of the trachea is the only method of dealing with these situations.

There is considerable controversy over the ease and safety of intubation. Much of this controversy is a result of a gross misunderstanding of the problem at hand. There are two points to be made: 1. In cases where obstruction is definitely present intubation must be done whether it is easy or difficult. 2. The procedure of intubating the infant has been madė unnecessarily difficult owing to a lack of understanding of a few simple principles. The commonest mistake is that of lowering the head over the edge of the table to put it in a position of hyperextension, supposedly to help visualize the glottis. This is an incorrect procedure.

METHOD OF INTUBATION

The child should lie flat on its back, with the back of the head flat on the table. The tip of the blade of an infant laryngoscope (Foregger is my preference) is inserted to the glottis. The handle of the laryngoscope is then lifted vertically. This brings the glottis to view, and the catheter is inserted without trauma.

There are still some who object to intubation but practice mouth-to-mouth insufflation. The inadequacies and dangers of this method include the lack of control of the pressure applied. When intubation is a must, the tracheal catheters herein described give maximal efficiency and safety in use.

THE MACHINE

The machine, which is entirely manually controlled, has been devised to overcome the objections to automatic devices, many of which contain multiple working parts, resulting in the machine frequently getting out of order. Dependability is essential in a machine used mainly in emergency. Owing to the danger of oxygen

---

From the Department of Obstetrics and Gynecology, University of Toronto.

delivery by mask, the machine is supplied with equipment for tracheal intubation to permit suction clearing and the direct administration of intratracheal oxygen. Mask attachment is also supplied for use when intratracheal administration is unnecessary.

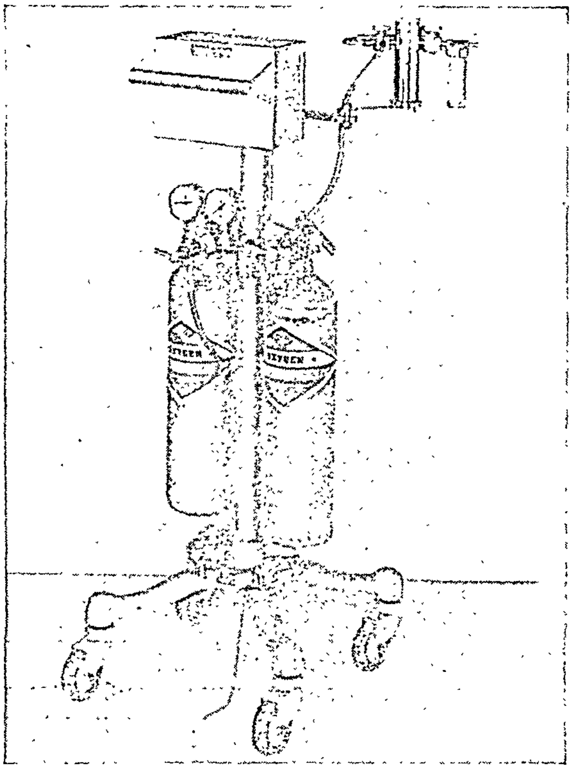


Fig. 1.—Machine used in resuscitation of the newborn infant.

The machine is a self-contained unit mounted on a heavy base with freely wheeling casters (fig. 1). Oxygen is supplied from two tanks, one in operation and the second a spare, always available. The oxygen is delivered to the resuscitation head through a standard reducing valve. A small built-in cabinet provides storage space for a laryngoscope and spare batteries, intratracheal catheters in graduated diameters, no. 4, 5, 6, and 7 (fig. 2), and a face mask. The head consists of a manually controlled suction bulb for removal of mucus; a removable, transparent, plastic drainage trap (no mucus can enter the oxygen administering valve), and a resuscitating valve of a simple, single chamber, two port, ball valve construction. It is simply a positive and negative resuscitating safety valve. The valve is a ball type, bronze construction. There are no washers, springs, hinges, or any other parts to get out of order or require replacement. In construction, the valve is designed to deliver a positive oxygen pressure of 12 mm. Hg and a negative pressure of 8 mm. Hg. No setting is necessary, and no change of these pressures can be made. Even with gross pressure ranges at the reducing valve these positive and negative pressures applied to the infant cannot be altered. Any excess oxygen merely escapes into the air.

The administration of oxygen and the switch to negative pressure is regulated by a manual control marked positive and negative. The rate of alternation from positive to negative pressure is entirely under the operator's control, which is a distinct advantage over automatic control. The manual control regulates the rate of alternation only. When on positive, the pressure is always 12 mm. Hg, never more nor less. Similarly, on negative, the pressure is always 8 mm. Hg, never more or less. There is no neutral or dead spot on the control. It is either positive or negative. (The negative pressure is created from the positive reduced tank pressure by the Venturi attachment.) No two resuscitation problems are alike. Each case requires individual treatment, which cannot be accomplished by automatic mechanical devices. The sooner this fact is realized and accepted the sooner will resuscitation salvages increase and disasters be avoided.

APPLICATION OF THE APPARATUS TO THE METHOD OF RESUSCITATION

As soon as the child is delivered, mucus should routinely be removed from the nasal passages and pharynx. If the infant does not breathe spontaneously there is no use wasting time with obsolete dangerous methods, nor is it permissible to attempt the administration of oxygen to an infant until a clear airway has been established. The passage of an intratracheal catheter is a procedure that requires more gentleness than skill. The minimal amount of manual dexterity required for introducing the catheter can readily be accomplished by anyone who has arrived at the station of assuming the responsibility for the care and management of the newborn infant. The catheters supplied with the apparatus greatly facilitate this procedure. The catheters are supplied in graduated diameters, and the length from hilt to tip is designed to permit an adequate descent into the trachea without encroachment on the coruna. They are metal and designed to prevent trauma. The metal construction provides rigidity to facilitate control, and the thin wall permits a maximal lumen. The hilt provides a side handle that removes the

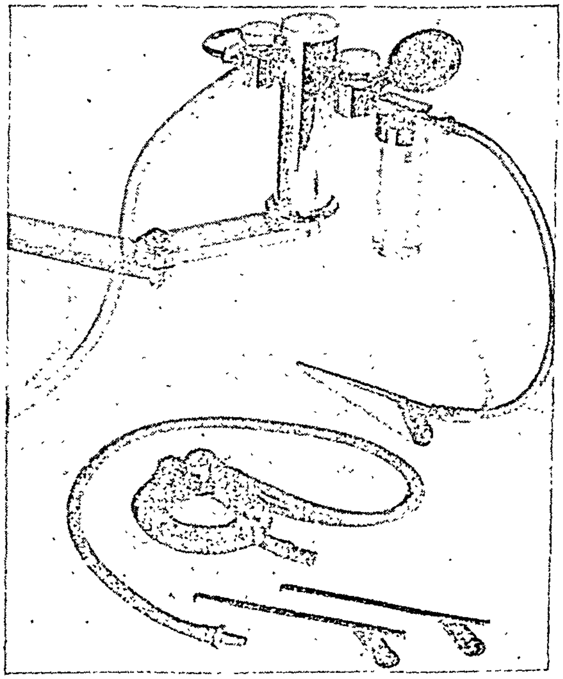


Fig. 2.—Intratracheal catheters in graduated diameters and the head of the resuscitation machine.

operator's fingers from obstructing the field of vision during insertion.

With the catheter in place the suction valve is opened, bulb section is applied to remove mucus, and the suction valve then closed. With the reducing valve registering about a 3 to 4 liters per minute flow of oxygen, the alternating positive and negative pressures to instigate respiratory movements are under the operator's control. Alternations of 10 to 15 per minute are adequate and give the child a much better chance of establishing his own respiratory rate than more rapid artificial movements. As long as the child's color is improving, the depth of respiratory movements is of no concern. The apparatus is delivering to the lung alveoli 100% oxygen. When respirations are established the catheter is removed. If the child is not robust and additional oxygen is indicated it may be administered with the face mask. A longer tube for attachment to the mask is provided for administering continuous oxygen to the child in the crib if necessary.

This apparatus and method of resuscitation is accepted and endorsed by the department of obstetrics and gynecology and the department of anesthesia, University of Toronto, Canada. In the two years that the instrument has been used in the Toronto General Hospital it has never been found to be out of order. There have been no mechanical breakdowns of any kind and no maintenance or service work required. This continued performance may be expected indefinitely. There has been no occasion to alter in any way the original design of the machine.

TEACHING AUSCULTATION BY ENDLESS LOOP TAPE RECORDING

George D. Geckeler, M.D.
William Likoff, M.D.
and
Daniel Mason, M.D., Philadelphia

Auscultation is the most satisfactory means of evaluating heart sounds and murmurs. The object of modern teaching is to bring about proficiency in auscultation through good training. It still remains a contemporary practice, however, to teach auscultation to small groups of students at the patient's bedside. This method is entirely dependent on available clinical material, and it is not unusual for students to enter the practice of medicine without ever having heard the bruit of a patent ductus arteriosus or the sound of a pericardial friction rub. Even if the desired material is at hand, students frequently react to the pressure of colleagues who await their turn to listen by hurrying through the examination without understanding what is heard, or patients often resist these repeated examinations and encourage careless haste. When teaching is restricted to clinical material, an opportunity to compare different sounds and murmurs is seldom offered at the time confusion first arises. Unless the work at the patient's bedside is carefully guided, misconceptions become fixed errors. In providing the constant supervision necessary, a teaching staff may be heavily overburdened. It is possible to meet these problems in teaching by making use of reproductions of heart sounds and murmurs. These may be graphic or auditory.

Phonocardiography is the graphic registration of the vibrations of heart sounds and murmurs. When the recording is done with a stethoscopic microphone, a record is obtained of all the vibrations that would reach the ear through the stethoscope, including the low-pitched tones that are not actually heard. The logarithmic microphone records the vibrations of only those sounds that are actually heard. Regardless of which microphone is used, the written record cannot serve as a substitute for an actual auditory reproduction, for the sense of hearing is best trained by listening. It is obvious that the description of the taste of an apple is a poor substitute for the experience of eating the fruit. Teaching methods that use actual sound reproductions are the most efficient for teaching students and physicians the art of auscultation.

By means of a microphone that will respond to low frequency sounds, it is possible to record heart sounds and murmurs on phonograph records.[1] Rappaport and Sprague [2] have shown that practically all heart sounds and murmurs are less than 2,000 cycles per second and that adequate means to record these frequencies must be used. Since a special playback is not required, these records may be played wherever a phonograph is available. They make possible the demonstration of types of heart sounds and murmurs that may not be ordinarily available and, if an explanatory script is included with the recording of the heart sounds, an intimate form of teaching is preserved. Phonograph records, however, have several failings. Each record contains many types of heart sounds and murmurs. When demonstrating to a large group, it is difficult to find a specific illustration without including other, perhaps confusing, material. Furthermore, it is impossible to play any single example continuously so that it may be mastered by repetition. Experience has shown that phonograph records are beneficial for individual rather than for group instruction. Records may be kept in a small room with special acoustic features or in a special section of the medical library to be used by students as reference material to supplement or clarify auscultatory findings in a patient.

A student's difficulty in learning the technique of auscultation very often arises on occasions when the heart rate is too rapid to permit recognition of a murmur and when a murmur cannot be separated from the accompanying heart sound. Heart rates cannot be satisfactorily reduced, and murmurs cannot be separated from heart sounds on phonograph records. Teaching cardiac auscultation has been greatly improved by the use of endless loops of tape on which heart sounds, murmurs, and arrhythmias have been recorded. This method of instruction has been more effective in teaching large groups of students and physicians than has the bedside demonstration of patients and the use of phonocardiograms or phonograph records. It does not require visual or pal-

---

From the Department of Cardiology, Hahnemann Medical College and Hospital.

This project was supported in part by a training grant from the National Heart Institute, United States Public Health Service.

[1] Geckeler, G. D.: Phonograph Records of Heart Sounds, Murmurs, and Arrhythmias, Am. J. M. Sc. 202:685-687 (Nov.) 1941.

[2] Rappaport, M. B., and Sprague, H. B.: Physiologic and Physical Laws that Govern Auscultation, and Their Clinical Application: Acoustic Stethoscope and Electrical Amplifying Stethoscope and Stethograph, Am. Heart J. 21:257-318 (March) 1941.

patory teaching aids; although these aids may be used as adjuvants, we feel strongly that they should not be used simultaneously with the playing of heart sounds. Auditory, visual, and palpatory stimuli have different reaction times, and, if shown simultaneously with auditory phenomena, they may result in confusion rather than clarification.

METHOD

The apparatus and the method described have been used successfully at the Hahnemann Medical College of Philadelphia for teaching sophomore and postgraduate students since 1950. The original reel-to-reel tape recordings of normal and abnormal heart sounds, murmurs, and arrhythmias are made in the conventional manner using a dynamic microphone and a tape recorder. The recordings are made in a sound dampened or acoustically equipped room, and, when played back they sound quite like the auscultatory findings heard with a stethoscope.

From these reel-to-reel recordings, continuous loops may be constructed by splicing selected segments of tape that contain several cardiac cycles. If the heart rhythm is regular, this continuous loop is an accurate reproduction of what would be recorded from the precordium over a long period of time.

By means of phonocardiographic study, it has been possible to determine the time that elapses between the first and second heart sounds and between the second and next first heart sound, with the heart beating at different rates. The recording tape runs at a speed of 15 in. (38.1 cm.) per second. With these factors known, it is possible to determine the length of blank tape that must be spliced between the first and second and the second and next first heart sound in order to reduce the cardiac rate of any particular recording. The fidelity of the sounds and murmurs is not affected by this maneuver. Splicing blank tape between murmurs and heart sounds permits them to be heard separately.

APPLICATION

With the utilization of endless loop tape recordings and clinical material, it is routine practice at the Hahnemann Medical College to teach auscultation to sections of 40 students during eight two-hour sessions. All demonstrations are held in a specially equipped room. Two playbacks are connected in series to the loud speaker. An ordinary cut-in switch permits the demonstration of clinical material, by using a recording microphone with the edges sealed by ordinary rubber tubing. The patient to be demonstrated is well removed from the loud speaker in order to prevent feed-back. Students are instructed to listen for one thing at a time and to approach the auscultatory problem in a routine fashion. In such a manner, first the rhythm is recognized, then the nature of the first and second heart sounds, and finally the presence of systolic and diastolic murmurs. The continuous loop may be played for an indefinite period of time until each student has mastered its lesson. The sounds may be compared with those of any other tape to illustrate a similar or easily confused auscultatory abnormality. They may be compared with the available clinical material through the use of the microphone and cut-in switch. When rapidity of cardiac rate results in confusion, a tape with reduced heart rate may be substituted. For further clarification, murmurs can be played apart from the heart sounds. When this method and material are properly applied, a gratifying proficiency in auscultation may be acquired in a relatively short period of time. Students experience no difficulty in applying their knowledge to stethoscopic examination.

SUMMARY

1. The ordinary methods of teaching auscultation are reviewed, and their shortcomings are noted.
2. The apparatus used to produce endless loop tape recordings is described.
3. The method of producing endless loop tape recordings is described, as well as the method of producing recordings at reduced rates or with murmurs separated from other heart sounds.
4. The advantages of teaching with endless loop recordings are cited.

249 N. Broad St. (7) (Dr. Likoff).

CAUSES OF DISABILITY IN PATIENTS WITH CHRONIC DISEASE

Joseph I. Goodman, M.D., Cleveland

Because interest in the chronic diseases has developed only recently, publications dealing with this subject are scarce. My long experience with chronically ill patients at the Cuyahoga County Nursing Home is, therefore, worthy of presentation. When this large 160 bed, publicly operated institution was established in 1939, a favorable opportunity to observe and study chronic disease was created. Many data on this increasingly important category of diseases have been accumulated during the 13 years that I have been the medical chief at the nursing home.

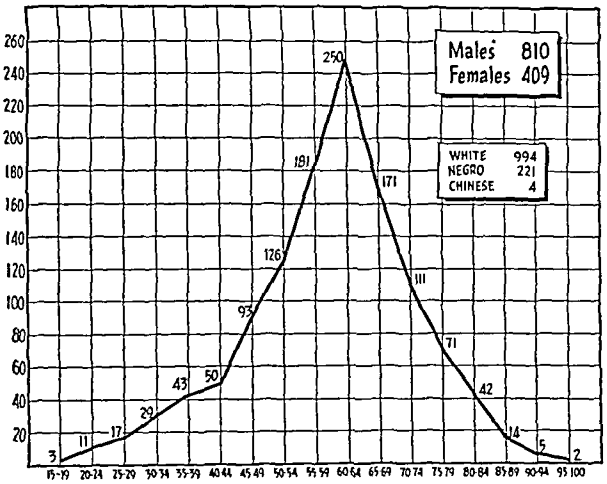
The present study deals with 1,219 patients, many of whom were given an autopsy, admitted to the home between February, 1939, and December, 1952. In accordance with state regulations, patients admitted to the nursing home are permanently and totally disabled and require active medical supervision and intensive nursing care. Persons with infectious diseases, tuberculosis, or psychoses are ineligible for admission. The type of disabilities found in this chronically ill group does not bear out the prevailing opinion that the leading causes of disability are the degenerative diseases, e.g., cardiovascular diseases, renal disturbances, and arthritis. The patients, preponderantly indigent, are usually referred to the nursing home by a private physician or a general hospital. Because the diagnostic facilities are limited, a complete study of each patient in a general hospital is a prerequisite to admission. Every new patient is examined thoroughly by the resident physician and me. Consultants in neurology, cardiology, and rheumatology make regular visits to the institution. Partly because of the limited diagnostic facilities, but mainly because of the orientation of the staff members and consultants, physical diagnosis has been emphasized. As a result, new diagnostic criteria have been developed in the patients at the home. Infor-

---

The statistical data for this study were compiled under the direction of Dr. Anna Lewin with the assistance of Dr. B. A. Treister, Director of Physical Medicine, Ursula Rist, Superintendent, Dr. George A. Csanad, and Grace Matsushima.

mation from previous hospital records is incorporated with all other pertinent medical data into the patient's record. Before a definite diagnosis is decided on, the consultants' opinions are taken into consideration. Of course, some diagnoses are changed after a period of observation in the home, but, in the last analysis, the final diagnosis of these patients has been scrutinized most carefully.

The age distribution curve of the 1,219 chronically disabled patients in this study is shown in the figure. The 60 to 64 year category is the peak age, though it can be seen that over one-half of the patients are 50 to 69 years of age. Actually two-thirds of the patients exceed 55 years in age, which is in keeping with the increasing longevity of the present-day population. Although the sex ratio indicates a 2:1 preponderance of males over females in this series (see figure), these figures are not truly representative of the actual sex ratio of chronic illness. It so happens that the wards at the nursing home have been arranged to accommodate twice as many males, thus accounting for their predominance over females. In view of the 1:4 ratio of Negro to white patients, as compared with an approximately 1:10 ratio in the population at large, it appears that chronic illness is more prevalent in the former.



Age distribution of 1,219 nursing home patients from Feb. 1, 1939, to Aug. 1, 1952.

For the purpose of this study, a special analysis of the major disabling conditions in 431 consecutive patients admitted to the nursing home between January, 1946, and July, 1952, has been made. Having been observed more recently than the group as a whole, i.e., within the past six years, this group has benefited from the newest developments in diagnosis, treatment, and classification of disease. Because of great uniformity in the interpretation of the findings, the conclusions drawn in the smaller group of 431 cases are probably more accurate. Nevertheless, I believe the deductions are equally applicable to the entire series and, in fact, to any comparable series of chronically ill patients. Another reason to accept the validity of the deductions in the smaller group is the remarkable similarity of the age distribution curves of the 431 patients in this report and that based on the 1,219 patients.

PRIMARY DISABILITIES

Multiple diagnoses were the rule in the present group of chronically ill patients. Only the patients' major disease is recorded in the table, the secondary disabilities and concomitant diseases being tabulated elsewhere. For example, in a patient with carcinoma of the lung in whom generalized atherosclerosis is also present, the former is

Major Causes of Disability of 431 Patients Admitted to County Nursing Home

		No. of Cases	%
Diseases of the nervous system		220	51.0
Cerebrovascular accident		86	20.0
Basal ganglion diseases		34	8.0
Postencephalitic paralysis agitans	21		
Basal ganglion degeneration	9		
Paralysis agitans syndrome	4		
Multiple sclerosis		17	4.0
Central nervous system syphilis		16	3.7
Tabes dorsalis	11		
Dementia paralytica	3		
Central nervous system syphilis	2		
Paraplegia		15	3.0
Lacunar disease		9	2.0
Pseudobulbar paralysis		7	1.6
Peripheral neuropathy		7	1.6
Guillain-Barré syndrome	5		
Others	2		
Dementia		6	1.3
Congenital spastic paralysis		4	0.9
Progressive muscular dystrophy		4	0.9
Amyotrophic lateral sclerosis		3	0.7
Brain injury		2	0.5
Primary cerebellar disease		2	0.5
Psychoneurosis		2	0.5
Cortical degeneration		2	0.5
Brain tumor		1	0.2
Progressive spinal atrophy		1	0.2
Syringomyelia		1	0.2
Combined systems disease		1	0.2
Malignant tumors		75	17.0
Carcinoma	72		
Lymphosarcoma	1		
Hypernephroma	2		
Amputations		29	7.0
Bilateral	8		
Unilateral	19		
Of the toes	2		
Congestive heart failure		25	6.0
Rheumatoid arthritis		19	4.0
Severe starvation		9	2.0
Fractures and improper healing		7	1.6
Chronic lung diseases		6	1.3
Bronchiectasis	1		
Asthma	3		
Fibrosis of lungs	2		
Hypertrophic arthritis		4	0.9
Cirrhosis of the liver		4	0.9
Tuberculosis of the bones		4	0.9
Chronic venous insufficiency		4	0.9
Deafness		4	0.9
Blindness		4	0.9
Occlusive peripheral vascular disease without amputation		3	0.7
Urinary incontinence		3	0.7
Due to indwelling catheter	2		
Due to ureterosigmoid anastomosis	1		
Diabetes mellitus		2	0.5
Myelogenous leukemia		2	0.5
Chronic osteomyelitis		2	0.5
Nephrosclerosis (malignant)		2	0.5
Osteomalacia		1	0.2
Heart block		1	0.2
Pilonidal sinus		1	0.2

regarded as the major disability and is recorded in the table, while the latter diagnosis does not appear.

It may come as a surprise to many that over one-half, or 51%, of the patients with chronic disability are affected primarily by a disorder of the nervous system. Since patients with psychoses are not accepted in the nursing home, the great majority of these patients have neurological disorders. The commonest neurological disability, by far, is the cerebrovascular accident (hemiplegia, stroke, or apoplexy), affecting one out of five patients admitted to the home. Also, this disorder constitutes the greatest single disability in two out of every five patients with neuropsychiatric diagnoses. Because the majority of the cases of cerebrovascular accident are caused by thrombi secondary to cerebral atherosclerosis, such patients may also be classified under atherosclerosis. Other frequently encountered neurological disabilities are diseases of the basal ganglions, central nervous system syphilis, multiple sclerosis, and peripheral neuropathy, although it can be seen in the table that almost every known neurological entity can be found among this large segment of admissions.

Second to the neuropsychiatric impairments in importance are malignant tumors, mainly carcinomas, which constitute 17% (75 cases) of the 431 patients in this study. The significance of this condition as a leading cause of prolonged disability requires no further comment. In third and fourth places, respectively, among the leading cause of prolonged disability are two other sequelae of atherosclerosis, namely, amputations and congestive heart failure. Still, compared to the frequency of the neurological diseases and malignancy, the relatively low incidence of these two conditions is worthy of note. This also holds true for rheumatoid arthritis, the fifth ranking cause of disability in this series. Because this condition can be so disabling, an institution such as the nursing home, so well suited to the management of such patients, receives a large share of the cases in this community. In view of this, the low incidence of rheumatoid arthritis, compared with the other conditions treated at the home, is totally unexpected. Actually advanced malnutrition (starvation) proves to be the sixth commonest primary disability in this series of patients. Although there were nine such cases, or 2%, in the group, these figures do not emphasize adequately the true importance of malnutrition in patients in whom other diseases have been listed as the major disability.

The remaining major disabilities listed in the table are scattered among many unrelated diseases. Despite its prevalence in the general population, hypertrophic arthritis proves to be a no more frequent cause of primary disability than cirrhosis of the liver, bone tuberculosis, chronic venous insufficiency, deafness, and blindness. In contrast to its high incidence in the general population, diabetes mellitus per se is not a disabling condition. The leading complications of diabetes producing disability, i.e., gangrene and coronary artery disease, are classified here under these categories when they occur and not under diabetes mellitus. There was an extremely low incidence in these patients of diseases of the gastrointestinal tract and the hematopoietic system as major disabilities.

The apparent discrepancy between the high incidence of atherosclerosis in patients of these age groups at autopsy and their low incidence as a cause of disability in this study deserves comment. The data in living disabled patients do not necessarily conflict with the postmortem findings, since there is also a very high incidence of proximal, peripheral, and coronary atherosclerosis (65% of the patients). It should be pointed out, however, that a patient with atherosclerosis is not disabled until one or more arteries supplying a vital area are occluded. Inasmuch as this study deals with functional impairment only, the incidence of disability following arterial occlusion as reported here need not parallel the frequency of atherosclerotic complications found at autopsy.

In the present study when all the major disabilities caused by atherosclerosis, i.e., thrombotic cerebrovascular accidents, cardiac failure, and amputations, are combined, they add up to 30% of the 431 patients. On further analysis it is found that two-thirds of these cases are cerebrovascular accidents and the remaining one-third are divided between cardiac failure and amputations. One must conclude, therefore, that as a cause of disability the cerebrovascular accident is far more prevalent than coronary sclerosis despite the high rank of the latter as a cause of death in this country.

2905 Franklin Ave.

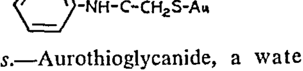
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. Stormont, M.D., *Secretary.*

Aurothioglycanide.—Lauron (Endo).—α-Auromercaptoacetanilid.—C_8H_8AuNOS.—M.W. 363.42.—The structural formula of aurothioglycanide may be represented as follows:



Actions and Uses.—Aurothioglycanide, a water-insoluble gold compound, is used for the treatment of rheumatoid arthritis on the same basis and subject to the same precautions as water-soluble salts of gold. (See New and Nonofficial Remedies under the section on gold compounds). Aurothioglycanide is absorbed more slowly from the tissues than are water-soluble gold compounds and produces fewer untoward reactions, but it should be employed with similar caution to avoid the possibility of toxic reactions. It has not been shown to be more effective than other gold compounds. Careful supervision, repeated laboratory examinations which will reveal signs of gold intoxication, and avoidance of exposure to sunlight, ultraviolet rays, or x-rays are essential as with the use of other forms of chrysotherapy.

Dosage.—Aurothioglycanide is administered into the gluteal muscle by injection of a suspension in oil. The initial dose should not exceed 25 mg. This is gradually increased as tolerated by increments of not more than 25 mg. administered, at weekly intervals for 22 weeks. However, a maximum single dose of 150 mg. should not be exceeded. When untoward effects are observed, the schedule of weekly injections should be interrupted until such manifestations have disappeared.

Tests and Standards.—

Physical Properties: Aurothioglycanide is a grayish-yellow powder, m.p. 238.0-241.0°. It is insoluble in acids, bases, benzene, ether, chloroform, and water.

Identity Tests: The procedure described for the determination of gold under Assay serves as an identity test.

Place in a test tube about 15 mg. of aurothioglycanide. Add 5 ml. of a 4% solution of selenium oxychloride in sulfuric acid: a deep red color develops (*presence of gold*).

Purity Tests: Dry about 1 gm. of aurothioglycanide, accurately weighed, at 105° for 4 hours: the loss in weight does not exceed 0.2%.

Assay: (Gold) Transfer to a porcelain crucible about 0.3 gm. of aurothioglycanide, accurately weighed. Heat slowly, to avoid splattering, until the compound is completely decomposed, then increase the heat until a homogenous residue of metallic gold is obtained. Cool in a desiccator and weigh. Each gram of gold formed is equivalent to 1.843 gm. of aurothioglycanide. The amount of gold is not less than 53.3 nor more than 55.0%, equivalent to not less than 98.0 nor more than 101.0% of aurothioglycanide.

Dosage Forms of Aurothioglycanide

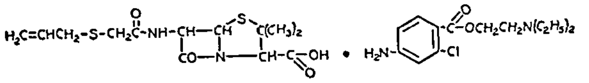
SUSPENSION. *Identity Tests:* The suspension responds to the identity tests for the active ingredient in the monograph for aurothioglycanide.

Assay: (Gold) Transfer to a tared sintered glass crucible of fine porosity an amount of suspension, accurately measured, equivalent to about 0.45 gm. of aurothioglycanide. Filter by suction and wash the aurothioglycanide with five 10 ml. portions of acetone. Proceed as directed in the assay for gold in the monograph for aurothioglycanide starting with, "Heat slowly to avoid splattering . . ." Each gram of gold formed is equivalent to 1.843 gm. of aurothioglycanide. The amount of aurothioglycanide is not less than 95.0 nor more than 105.0% of the labeled amount.

Endo Products, Inc., Richmond Hill, N. Y.

Suspension Lauron in Oil: 5 and 10 cc. vials. A suspension in sesame oil containing 50 and 150 mg. of aurothioglycanide in each cubic centimeter. U. S. patent 2,451,841. U. S. trademark 398,432.

Chloroprocaine Penicillin O.—Depo-Cer-O-Cillin Chloroprocaine (Upjohn).—A crystalline salt of 2-chloroprocaine and penicillin O. The structural formula of chloroprocaine penicillin O may be represented as follows:



Actions and Uses.—Chloroprocaine penicillin O, a water-insoluble salt of penicillin O, has the same spectrum of antibacterial activity as other salts of penicillin O and penicillin G. (See New and Nonofficial Remedies under the monographs on penicillin G and potassium penicillin O.)

The intramuscular injection of chloroprocaine penicillin O, as a suspension dispersed in water, results in the formation of a depot of penicillin O, similar to that produced by corresponding preparations of procaine penicillin G. The levels of antibiotic in the blood produced by intramuscular injections of an aqueous suspension of chloroprocaine penicillin O are approximately equal to those obtained by a similar injection of an aqueous suspension of procaine penicillin G. With aqueous chloroprocaine penicillin O, the levels of the antibiotic in the blood usually persist for about 24 hours as compared to 12 to 18 hours with aqueous procaine penicillin G.

As with soluble salts of penicillin O, the majority of patients sensitive to salts of penicillin G will tolerate chloroprocaine penicillin O without allergic reactions; however, some patients may be sensitive to both penicillin G and penicillin O. In such patients another antibiotic should be used.

Dosage.—Chloroprocaine penicillin O is administered intramuscularly as an aqueous suspension containing 300,000 units per cubic centimeter. In acute staphylococcic, streptococcic, and pneumococcic infections, the minimum dosage is 300,000 units injected once daily and continued until the temperature has returned to normal for at least 48 hours and evidence is present that the infection is disappearing. When these infections are severe, 600,000 units every 12 hours may be employed, or replaced by injections of a solution of potassium penicillin O at shorter intervals. In acute gonorrhea, a single injection of 300,000 units is usually sufficient to effect a cure, but patients who fail to respond should be retreated until a cure has been achieved. In chronic gonorrhea accompanied by complications, higher doses and more prolonged therapy may be required. In the treatment of gonorrhea the possible masking effect of penicillin on the early signs of syphilis should be kept in mind; appropriate tests should be instituted to confirm or exclude the presence of that disease.

Aqueous suspensions may be kept at room temperature for three weeks without a significant loss of potency and without caking. If refrigerated, the suspension should be gradually warmed prior to injection and shaken vigorously to make certain that all of the penicillin is in suspension. Excessive heating should be avoided to prevent destruction of the physical or antibacterial properties of the suspension.

The Upjohn Company, Kalamazoo, Mich.

Depo-Cer-O-Cillin Chloroprocaine: 1,500,000 unit vials of chloroprocaine penicillin O. U. S. trademarks 515,760 and 554,422.

Estrone-U.S.P. (See New and Nonofficial Remedies 1953, p. 357).

Eli Lilly & Company, Indianapolis.

Solution Estrone in Oil: 10 cc. vials. A solution in sesame oil containing 1 mg. (10,000 I. U.) of estrogenic activity in each cubic centimeter.

Isoniazid (See New and Nonofficial Remedies 1953, p. 85).

Premo Pharmaceutical Laboratories, Inc., South Hackensack, N. J.

Tablets Nicozide: 50 and 100 mg.

Mephenesin (See New and Nonofficial Remedies 1953, p. 466).

Hexagon Laboratories, Inc., New York.

Powder Mephenesin: Bulk; for manufacturing use.

E. S. Miller Laboratories, Inc., Los Angeles.

Tablets Tolulexin: 0.25 gm.

Mercurophylline Sodium (See New and Nonofficial Remedies 1953, p. 305).

Lincoln Laboratories, Inc., Decatur, Ill.

Solution Mercurophylline (Sodium): 1 cc. and 2 cc. ampuls. A solution containing 0.14 mg. of mercurophylline sodium (equivalent to 39 mg. of mercury) in each cubic centimeter.

Normal Human Plasma-U.S.P. (See New and Nonofficial Remedies 1953, p. 213).

Courtland Laboratories, Los Angeles.

Normal Human Plasma (Lyophilized): 50, 250, and 500 cc. bottles of dried plasma, packaged with an air filter, double-pointed needle and 50, 250, and 500 cc., respectively, of 0.1% citric acid solution for restoration.

Phenindione (See THE JOURNAL, May 9, 1953, p. 142).

Schieffelin & Company, New York.

Tablets Danilone: 50 mg.

Piperazine Estrone Sulfate (See New and Nonofficial Remedies 1953, p. 365).

Abbott Laboratories, North Chicago, Ill.

Elixir Sulestrex Piperazine: 118 cc. bottles. A flavored elixir containing 0.3 mg. of piperazine estrone sulfate in each cubic centimeter.

Pyridoxine Hydrochloride (See New and Nonofficial Remedies 1953, p. 493).

E. S. Miller Laboratories, Inc., Los Angeles.

Tablets Pyridoxine Hydrochloride: 10 mg.

Sulfisoxazole (See New and Nonofficial Remedies 1953, p. 105).

Hoffmann-LaRoche, Inc., Nutley, N. J.

Suspension Gantrisin Pediatric: 118.3 and 473 cc. bottles. A suspension containing 0.1 gm. of sulfisoxazole in each cubic centimeter. Preserved with 0.08% methylparaben and 0.02% propylparaben.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
535 N. DEARBORN ST. . . . . CHICAGO 10, ILL.
Editor . . . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

ACUTE RENAL FAILURE

The syndrome of acute renal failure, as seen in crush injuries, was first reported in 1941 by Bywaters and Beall[1] in the *British Medical Journal.* The subject was editorially considered in THE JOURNAL, September 20, 1941.[2] After recovery from the initial shock, in the patients observed oliguria developed, with blood, albumin, and many dark brown and black granular casts. The blood urea and potassium became progressively higher, and death occurred within a week. Necropsies revealed necrosis of the crushed muscle and degenerative changes in the renal tubules. Lauson and his co-workers[3] studied the changes in renal vascular dynamics resulting from peripheral circulatory failure in 35 human cases by means of the clearance methods. Their investigation confirmed the hypothesis that the urinary findings in shock, namely, oliguria and anuria and loss or impairment of concentrating power, are the result of decreased circulation through the kidneys. Oliver and his coworkers[4] demonstrated that the functional and structural alterations in the kidney in the case of acute renal failure caused by toxic or traumatic injuries are those of a tubular nephropathy. The pathogenesis was the same in such clinically different entities as crush injury, transfusion reactions, obstetric accidents, and fatal poisonings. The lesions involved the renal tubules and consisted of disseminated areas of epithelial degeneration, necrosis, and basement membrane rupture.

Swann and Merrill[5] review the literature and their own observations on 100 patients with acute renal failure who have been admitted in the past four years to the Peter Bent Brigham Hospital. The clinical course of this apparently new syndrome is characterized by a period of severe oliguria of a few days' to a few weeks' duration, associated with increasing clinical and chemical evidence of renal failure and followed by a period of rapidly returning function and excretion of water, inorganic ions, and metabolites accumulated during the oliguric period. Oliguria, proteinuria, hematuria, and decreasing urinary specific gravity usually begin within hours of the causative event.

The oliguric phase is followed by the diuretic phase, the period during which clinical improvement and the return of renal function is rapid. Swann and Merrill[5] stress that the transition from the oliguric to the diuretic phase is of major importance in limiting the incidence of the morbidity and mortality from the complications of the oliguric phase. The average duration of oliguria in acute renal failure is about 10 to 12 days. During this phase symptoms and signs are those of cardiovascular, gastrointestinal, and neuromuscular dysfunction. Recognition that after the onset of acute renal failure cardiac function and not the renal function becomes the major concern of the clinician has been according to Swann and Merrill[5] the most important clinical advancement in the past 10 years in the management of this condition. Cardiac dysfunction is the most serious complication of acute renal failure and is the principal cause of death. Two types of cardiac dysfunction are recognized in acute renal failure. The first and commonest form results in pulmonary edema. The second is represented by a cardiac condition associated with hyperkalemia. Pulmonary congestion is a frequent and dangerous complication.

The cerebral complications are those of somnolence, which usually begins toward the end of the first week of oliguria and may progress to stupor, delirium, and coma. Marked delirium and convulsions in the series of Swann and Merrill[5] all appeared to be due to excess administration of water and sodium. Leukocytosis is almost always present early in the oliguric phase. Fever usually follows the initial injury or illness and is present only in the first few days. Rapidly progressing anemia is one of the most constant features of the clinical course. In the oliguric phase, hyponatremia usually occurs with hyperkalemia.

Potassium intoxication is recognized by alterations in the sensorium and by signs of cardiovascular and neuromuscular dysfunction. Cardiovascular signs include faint heart sounds, falling arterial blood pressure, decreasing pulse rate, arrhythmia, periods of asystole, and circulatory collapse. Alterations in the sensorium include anxiety and restlessness progressing to extreme apprehension, sweating, stupor, and terminal convulsions. Neuromuscular signs are those of weakness and hyporeflexia progressing to paralysis of the limbs and of respiration and areflexia, and of paresthesias of the extremities, lips, and tongue, progressing to anesthesia.

Delirium, convulsions, pulmonary edema, vomiting and diarrhea, severe epistaxis, and other manifestations of renal insufficiency may first appear after the onset of the diuresis, even though the daily renal volume exceeds a liter. Patients recovering from acute renal failure show a delayed or blunted response of urinary flow to water intake. A low-grade fever, usually beginning in the second week of the diuretic phase, is characteristic of the course. Marked anemia persists for weeks or months after recovery.

The therapy of acute renal failure has undergone considerable modification because of the recognition that an organic lesion requiring repair is responsible for oliguria. Renal decapsulation and diuretic agents to stimulate urinary flow have been abandoned. Attempts to

---

1. Bywaters, E. G. L., and Beall, D.: Crush Injuries with Impairment of Renal Function, Brit. M. J. **1**: 427 (March 22) 1941.
2. Renal Failure in Crush Injuries, editorial, J. A. M. A. **117**: 1019-1020 (Sept. 20) 1941.
3. Lauson, H. D.; Bradley, S. E., and Cournand, A.: The Renal Circulation in Shock, J. Clin. Invest. **23**: 381-402 (May) 1944.
4. Oliver, J.; MacDowell, M., and Tracy, A.: The Pathogenesis of Acute Renal Failure Associated with Traumatic and Toxic Injury: Renal Ischemia, Nephrotoxic Damage and the Ischemuric Episode, J. Clin. Invest. **30**: 1307-1438 (Dec.) 1951.
5. Swann, R. C., and Merrill, J. P.: The Clinical Course of Acute Renal Failure, Medicine **32**: 215-292 (May) 1953.

induce a greater urinary flow during the oliguric phase may be hazardous. The therapeutic objective is to enable the patient to survive the oliguric period.

A NEW LOOK AT PRICES

Elsewhere in this issue (page 1365) is an analysis from the Bureau of Medical Economic Research of the American Medical Association of the effects on indexes of medical care prices, including fees, of the shifting of the base period from 1935-1939 to 1947-1949, for indexes of consumer prices of the Bureau of Labor Statistics of the United States Department of Labor. The author points out that revisions in the indexes and the addition of approximately 100 commodities and services —such as television sets, frozen foods, and nylons—are genuine improvements. He questions, however, the wisdom of using this new base period, because, for one reason, those three years are an interlude in an inflationary trend that has continued into the 1950's. They do not provide a true base period but rather a temporary foothold on an incline of inflation. The reasons given for shifting to the 1947-1949 period by the Bureau of the Budget, which ordered the change, are not conclusive. Admittedly, it is easier to add new commodities and services to the series by adopting a new base period. In this way, a patchwork of revision is avoided. Nevertheless, in the past items have been added to such series by the "splicing-on process," without changing the base period, even though it may be awkward. One wonders, then, if it is possible that 1947-1949 was chosen by the Bureau of the Budget in order to make the high inflationary levels seem more platable to the consumer. Whatever the reason, or reasons, the choice has made some of the indexes seem somewhat ridiculous.

Because medical prices, among others, such as rents, were relatively static prior to 1949, the shift of the base makes them appear to be superficially high in 1951 and 1952. On the other hand, commodities and services whose prices rose rapidly during the inflationary 1940's, such as women's cotton housedresses, men's street shoes, and haircuts, appear to be relatively low in price in 1951 and 1952 solely because of the shift to the new base period, 1947-1949. Are the prices of women's cotton housedresses, men's street shoes, and haircuts moderate today? A shift in statistical compilation will not convince wage-earners that these commodities and services are low-priced. In 1952 the indexes of medical care prices in general and physicians' fees in particular were below the entire Consumers' Price Index computed on the old base period, 1935-1939. On the new base period, however, they are actually above the Index. This reversal of the relative position of medical care prices in relation to the entire Index will doubtless puzzle many physicians who do not carefully read the article on page 1365.

The least that can be done to restore public confidence in the indexes would be for the Bureau of Labor Statistics to release to the press and the public annual summaries on both the old and the new base periods, at least the sections of the index that go back to 1935-1939. The cost would not be a barrier, for the amount of additional work and mimeographing would be negligible.

Sympathetic understanding of the special problems created by the new base period for some users of the indexes and admonitions by the staff of the Bureau of Labor Statistics for such persons to choose their own base period leaves much to be desired, because Department of Labor publicity offices probably will stress the low indexes for haircuts, women's cotton dresses, and men's shoes. News commentators and the press, not aware of the significance of the change in the index base, will repeatedly state that medical care and rent indexes are higher than the entire Index, that the current rise in the Index was paced by rises in these two items, and that the indexes for women's cotton housedresses, men's street shoes, and haircuts are moderately low.

Those economists who have cooperated with the Commissioner of Labor Statistics and his Washington and regional office staffs in facilitating the gathering of monthly and quarterly data on price changes feel that they have earned the right to object to dropping the old base period completely. The Bureau of Medical Economic Research has repeatedly urged busy physicians to give data on prevailing fees to these field representatives. The Bureau intends to continue to cooperate, because the Consumers' Price Index and its breakdowns are valuable tools for economists. Such cooperation is in the public interest. In turn, the Bureau believes it should insist on the presentation of a set of figures that provide a clearer picture of price relationships for a longer period of time than is possible from the new base period.

If this plea is not to be misunderstood, one further comment seems necessary. The income of physicians is determined by collections and output, as well as by fee schedules; only changes in the fees are reflected in the Consumers' Price Index. The survey of physicians' incomes in 1949, a joint study by the United States Department of Commerce and the Bureau of Economic Research, clearly indicated that the average incomes of physicians and of all gainfully employed persons had been increasing at the same pace. Sample studies indicate that this equality in income increases continued through 1951. A moderate increase in fee schedules combined with a higher percentage of fees collected and a phenomenal increase in "output per physician" has enabled physicians to keep close to the center line of the inflationary highway up which the nation has been traveling so rapidly. In making this request to the Bureau of the Budget and to the Department of Labor, no one is looking for an excuse to claim that physicians' fee schedules should rise during a long inflationary period as rapidly as the entire Consumers' Price Index; there merely is the reasonable request that if they have not risen so rapidly this fact should not be concealed from the public by the exclusive use of the 1947-1949 base period in the revised index after January, 1953.

If the Bureau of Labor Statistics refuses to publish the indexes on the old base period at least once each year, some action seems indicated because of the illusion created by shifting to the new base period. The Director of the Bureau of Medical Economic Research in future articles in The Journal on this subject might well present all indexes on the 1935-1939 base, and other economists may be forced to take a similar position.

ORGANIZATION SECTION

STATEMENT BEFORE HOUSE SUBCOMMITTEE ON HOSPITALS OF THE COMMITTEE ON VETERANS' AFFAIRS

I am Dr. Walter B. Martin of Norfolk, Va., where I am engaged in the active practice of medicine. I am President-Elect and a member of the Board of Trustees of the American Medical Association and am appearing here today (July 13, 1953) as a representative of that Association relative to the hospitalization entitlement of veterans. I am accompanied by Mr. C. Joseph Stetler, Secretary of the Committee on Legislation of the American Medical Association.

At the outset I should like to state that in addition to being a physician I am also a veteran, having served in both World War I and World War II. I can assure you that I am appreciative of the contribution made by men in uniform to their country and the problems, medical and otherwise, which arise during and as a result of their service.

In your letter inviting us to testify certain questions were presented which indicate that the Committee is interested primarily in hospitalization and medical benefits for veterans whose disabilities have no connection with their military service. I shall merely state, therefore, with respect to the care of veterans with service-connected disabilities, that the American Medical Association is and always has been in complete accord with the overwhelming sentiment of the American people that the federal government has a duty to care for any man who has become physically or mentally handicapped as a result of military service.

Inasmuch as your Committee has complete background and statistical information with respect to the eligibility and number of veterans with non-service-conncted disabilities who are receiving hospitalization and medical care, I shall refer to these factors only in general terms. I would, however, like to preface the body of my statement with a brief reference to the history and extent of the interest of organized medicine in this matter.

Since 1925 when the House of Delegates of the American Medical Association registered opposition to the medical provisions of Section 202 of the World War Veterans' Act of 1924, the Association has been in close and constant touch with the medical activities of the Veterans Administration. On more than 30 occasions since that date the House of Delegates and the Board of Trustees have considered various aspects of the program. The most recent action of the Association, which I shall discuss later, was taken by the House of Delegates on June 3 of this year, on the basis of an exhaustive one-year study conducted by a special committee appointed in December, 1951. In accordance with the request contained in your letter of June 22 I have supplied the Clerk of the Committee with sufficient copies of that report to permit complete distribution.

In its deliberations and study of this subject, the Association has worked closely with allied health associations and with major veterans organizations and has considered seriously the views and proposals of each group. Although much discussion has been devoted to the validity of quoted statistics and to the efficiency of the Veterans Administration in the operation of the medical program, it is the belief of the American Medical Association that the really basic questions involved have been ignored.

We feel that the Congress should decide whether existing legislation providing hospitalization and medical care for veterans with non-service-connected disabilities is sound, whether the federal government should continue to engage in a gigantic medical care program in competition with state, local and private medical institutions and whether the ever-increasing cost of such a program is a proper burden to impose on the taxpayers of this country. We further feel that consideration of these problems must be predicated upon a concern for the health and welfare of the entire population and not for just a particular segment.

It is the recommendation of the Association that legislation be enacted limiting medical care and hospitalization benefits for veterans in Veterans Administration and other federal hospitals to the following two categories: (*a*) veterans with peace-time or war-time service whose disabilities or diseases are service-incurred or aggravated; and (*b*) within the limits of existing facilities, to veterans with war-time service suffering from tuberculosis or psychiatric or neurological disorders of non-service-connected origin, who are unable to defray the expenses of necessary hospitalization.

The Association recommends that the provision of medical care and hospitalization in Veterans Administration hospitals for the remaining groups of veterans with non-service-connected disabilities be discontinued and that the responsibility for the care of such veterans revert to the individual and to the community.

The recommendation of the Association with respect to the treatment of veterans with tuberculosis and neuropsychiatric disorders of non-service-connected origin is a temporary one which is believed necessary at this time because of the inadequacy of local facilities designed to provide treatment for all such cases. It is believed, however, that the entire question of whether the care of these patients is a local or federal responsibility must be re-analyzed by the Congress. The rapidly-expanding veterans population and the need for facilities for the remainder of our citizens afflicted with these diseases suggests that community facilities must be developed under state or local administration for the benefit of all. Preferential treatment for veterans with these non-service-connected disabilities cannot be continued indefinitely, in view of the detrimental effect on the health and economy of the entire nation.

Although the initial motivation for the medical program of the Veterans Administration was the desire to provide care for veterans who had become disabled in the course of service to their country, it is now clear that, through congressional acts, administrative interpretations and happenstance, the program has expanded rapidly, primarily during recent years, for the purpose of providing care to veterans whose disabilities have no relationship to military service.

While there may have been sound reasons for originally extending medical care to veterans with non-service-connected disabilities there is considerable doubt that the Congress ever intended that the medical program of the Veterans Administration should develop to its present size. In addition, and of even greater importance, is the obvious fact that if present policies are continued, the federal hospital system devoted to veterans' care will have to undergo considerable further expansion. The ever-increasing number of veterans and the gradual shift in their age distribution to higher age levels with a corresponding increase in chronic disabilities make this expansion inevitable.

It is interesting to note in this connection that there are about 20,000,000 veterans at the present time with an annual increase of approximately 1,000,000. Of this total, approximately 15,000,000 are veterans of World War II, whose average age is about 33 years, compared with 59 years for World War I veterans, and 76 years for Spanish-American War veterans. The Veterans Administration has reported that at the turn of the century there will be almost as many World War II veterans alive (3,404,000) as there are World War I veterans alive today. The average age of the World War II veterans then, however, will be nearly 78.

Before discussing some of the over-all effects of the present medical care program for veterans, I would like to comment on the specific questions presented in your letter of June 22. You inquire particularly concerning contract hospitalization, the establishment of standards for determining eligibility for hospitalization in non-service-connected cases, and whether the possession of health insurance should be a bar to hospitalization in such cases. Although detailed recommendations have not been formulated with respect to all of these questions, I should like to present the general thinking of the Association.

With respect to contract hospitalization, I am sure it is clear from the above that we would be opposed to the use of this medium to extend the present medical program of the Veterans Administration. If, however, such a device could be employed within the framework of our recommendations as outlined above with a resulting more efficient utilization of existing federal and civilian health facilities, we would favor it.

Inasmuch as we have not studied the various administrative methods for determining "inability to pay" I will refrain from making any specific recommendations in this area.

The last point dealing with the admission of veterans with non-service-connected disabilities into Veterans Administration facilities if they are covered by health insurance is one on which we have taken a definite stand. It is our belief that the institution of such a procedure through legislation would, in effect, amount to a standing offer on the part of the federal government to pay part of the cost of hospitalization and medical care for every veteran suffering from a non-service-connected condition. Such a provision could logically be interpreted as permitting the admission of veterans to Veterans Administration facilities irrespective of their financial status, provided that a portion of the cost of such care could be recovered.

At the present time, administrative regulations are in effect in the Veterans Administration which permit the hospitalization of veterans with prepaid health insurance and the collection of the benefits of such policies by the Veterans Administration.

It is our belief that such a practice is a departure from the original theory of the Congress in providing hospitalization for veterans with non-service-connected disabilities. If such a veteran has the ability to pay for his own hospitalization and medical care through insurance or other assets, it was not intended that he be admitted to a Veterans Administration hospital.

Any complete consideration of the potentialities of the Veterans Administration medical program necessitates a recognition of medical manpower problems, in general, and of the combined effect of the various governmental medical programs on the health of the nation.

Of all of the many important problems that exist in this period of limited mobilization there is none more difficult of analysis and final solution than that of manpower. While it is true that today we have more physicians per thousand population than any other major country and that the productivity of the individual practitioner is constantly increasing, nevertheless the medical manpower situation will be rendered critical if the present rapid uncoordinated expansion of government medical services is allowed to continue.

As the federal government siphons off the medical and allied health personnel needed to meet its continually expanding requirements, the talent available for the civilian population diminishes. This creates an artificial shortage of doctors and other health personnel for the rest of the population. As a result, we continually hear that a shortage of doctors exists. Yet in 1940, before the war, no one maintained that there was such a shortage. In fact, there was a shortage of patients. Many young and well-trained doctors were finding it difficult to establish practices. In 1940 there were 169,628 physicians in the United States. By 1952 the number had increased to 216,200, a gain of 46,572. Thus, although the population of the country had increased by 20 per cent the physician population had increased by 28 per cent.

With respect to the impact of the medical program of the Veterans Administration on civilian health facilities, it should also be noted that this country has developed a large voluntary hospital medical training program that centers around the medical schools and voluntary teaching hospitals. This system is partly supported through the Hill-Burton Act and by various grants to medical schools for research. In addition, however, the federal government maintains five major medical training activities for interns and residents under the Veterans Administration, the Army, Navy, Air Force and the United States Public Health Service. These medical services were designed originally to meet the needs of certain groups. However, their activities have been gradually expanded by drawing into their sphere a constantly increasing number of civilians who previously were cared for by private civilian medicine. Where formerly these services relied on civilian training programs to provide skilled specialists, they have now embarked on training programs of their own. In order to qualify for resident and intern training, it is necessary for service hospitals to provide diversified clinical material. As a consequence there has been increasing pressure to draw into theses hospitals non-service-connected general medical and surgical cases from among the veteran population as well as dependents of service personnel.

As a result, government hospitals are in competition with civilian hospitals not only for personnel but also for patients. Although the federal government, aided by state and local subdivisions, is spending millions of dollars under the Hill-Burton Act in civilian hospital construction it is becoming increasingly dfficult for them to operate at a reasonable cost because patients and health personnel are being diverted into hospitals wholly supported by the federal government. This policy is producing a wasteful duplication of hospital facilities and an unwarranted dispersion of health personnel which not only threatens our great voluntary civilian teaching program but causes a continual increase in the cost of hospital and medical care for persons who must pay their own way.

In its testimony before Congress, and at other times, the American Medical Association has repeatedly pointed out the wastefulness inherent in the present uncoordinated system for providing medical care and hospital benefits by the federal government. The House of Delegates and the Board of Trustees of the Association have, on several occasions, reiterated the belief that one of the ways to institute governmental economy in the use of funds and medical manpower is to establish a Federal Board to allocate the number of beds required by the several federal hospital services; to insurance joint planning in the field of civilian and federal hospital construction; and to determine the need for and location of proposed new hospitals in the United States.

In summation, I would like to say that in arriving at its recommendations in the field of veterans' medical care, the American Medical Association has made an earnest effort to properly respect and have a sympathetic concern for all interests involved. Some will point out that the hospital casts of indigent veterans with non-service-connected conditions will be the taxpayer's responsibility in any event, either through the use of state or federal funds.

We believe that a careful review of the facts will prove that the wisest eventual course will dictate that responsibility for the care of veterans with disabilities having no relationship to military service should revert to the individual and to the state and local communities where it rightfully belongs.

The gradual expansion and intervention of the federal government into the affairs of local governments and individuals during the past decade has apparently confused some people as to the proper responsibilities of each. Continued federal encroachment into private affairs cannot be advocated logically and consistently by those who, at the same time, voice their opposition to socialism. It is time to reorient our thinking and to recognize the dangers which threaten the foundation of our basic philosophy before we reach the point of no return in terms of collective socialistic planning. It would be unfortunate indeed, if, in our efforts to reward patriotism, we were responsible for the creation of a system of government medicine, against the will of the majority, with its inevitable deterioration in the quality of medical care for veterans and non-veterans alike.

The American Medical Association discerns in this situation a urgent present need for a courageous stand and for the formalization of a legislative program limiting the activities of the federal government in the field of veterans' medical care. This is a most propitious time for creative legislative thinking and action in the solution of the important problems involved.

In conclusion, I would like to stress again the fact that the recommendations which we have made do not suggest any limitation or impairment of the hospitalization or medical care now available to veterans who have become handicapped as a result of military service. We are in complete accord with that program.

I would also like to thank the Committee on my own behalf and on behalf of the American Medical Association for the opportunity to present our views and recommendations on this extremely important subject.

CLINICAL MEETING, ST. LOUIS, DEC. 1-4, 1953

Dr. Llewellyn Sale, chairman of the Local Committee on Arrangements for the Clinical Meeting of the American Medical Association in St. Louis, Dec. 1-4, 1953, announces that plans are developing rapidly and that from all indications the meeting will be an outstanding one. All scientific activities will be held in Kiel Auditorium, where there are ample facilities for the lecture program, Scientific Exhibit, Technical Exposition, motion picture program, and television. The House of Delegates will hold its sessions at the Jefferson Hotel.

Dr. Daniel L. Sexton, subchairman in charge of clinical presentations, has nearly completed the program for clinical presentations and color television. These will cover the fields of medicine, surgery, pediatrics, obstetrics and gynecology, tuberculosis and other diseases of the chest, cardiovascular diseases, arthritis, dermatology, gastrointestinal diseases, and neuropsychiatry. Arrangements for color television to be presented through the cooperation of Smith, Kline and French Laboratories, have been completed, but the showing of this program at the meeting will depend on the settlement of a jurisdictional dispute between two labor unions in the auditorium.

The Scientific Exhibit will be correlated as far as possible with the clinical presentations. Besides a group of 75 or 80 exhibits on the above subjects, there will be several special features. The special exhibit on fractures will be shown as usual under the fracture exhibit committee, composed of Dr. Gordon M. Morrison, Boston, chairman; Dr. Ralph G. Carothers, Cincinnati, and Dr. Herbert Virgin Jr., Miami, Fla.

A contemplated feature is an exhibit symposium on the prevention of traffic accidents. This would include the responsibility of the physician in telling his patient when he should not drive and what other precautions he should take in special situations, the testing of the drinking driver, precautions to be taken by automobile manufacturers in the reduction of hazards, and the care of the injured after an accident. Cooperation of the various agencies interested in the problem will be discussed, such as the National Safety Council, the traffic division of the police, and the various medical groups that have been attempting to solve this problem.

Medical motion pictures will be shown continuously, with the authors present, whenever possible, to discuss their work. The Committee on Medical Motion Pictures is arranging the program. The Council on Scientific Assembly is in charge of the clinical presentations and color television, while the Committee on Scientific Exhibit is in charge of the scientific exhibit and motion pictures. Applications for space in the Scientific Exhibit may be obtained from the Director, Scientific Exhibit, American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.

IMPOSTOR SOUGHT

Information is urgently needed concerning the whereabouts of an alleged physician who uses the name Dr. Samuel Pike Hall. Anyone knowing his present whereabouts should contact by wire Mr. Charles R. Vaughan, State's Attorney of Richland County, Olney, Ill. The man in question is described as follows: height, 5 ft. 10½ in.; weight, 180 lb.; hair, black; age, 39; eyes, brown; complexion, dark. He has a scar on the right side of his chest. He is reported to have left Olney, Ill., where he posed as a physician, abandoning his pregnant wife without support, and owing sums of money. While in Olney, he is alleged to have conducted himself as a physician in such a manner as to gain admiration from his professional associates.

The Journal published notification of this impostor on Aug. 14, 1948, page 1475. As pointed out there, this man is not to be confused with Dr. Samuel Pike Hall of Oakland, Calif., or Dr. Samuel Parks Hall Jr., of Scottsboro, Ala., both of whom are reputable physicians engaged in the practice of medicine in their respective communities.

FEDERAL MEDICAL LEGISLATION

Public Assistance

Senators Sparkman and Hill, Democrats from Alabama, propose in S. 2351 to authorize for an additional two years after September, 1954, the present rate of federal contribution to the states for assistance for dependent children and the aged, blind, and disabled. The bill is identical with S. 1933, introduced by Senator Humphrey and previously reported. This bill was referred to the Finance Committee.

Voluntary Pension Plans

Congressman Elliott (D., Ala.) introduced H. R. 6114 to permit tax deduction in calculating income tax to facilitate the creation of retirement annuities by the self-employed. This measure is identical with H. R. 10 (Jenkins) and H. R. 11 (Keogh), previously reported. This measure was referred to the Ways and Means Committee.

Retirement Benefits for Disabled

Congressman Fino (R., N. Y.) proposes in H. R. 6115 "to amend the Social Security Act to provide that (for the purpose of old-age and survivors insurance benefits) any insured individual who is totally and permanently disabled, and who has not less than twenty quarters (five years) of coverage, shall be deemed to have reached retirement age." A "totally and permanently disabled individual" is defined as "unable to engage in any substantially gainful activity by reason of any medically determinable physical or mental impairment which is permanent in nature, or . . . blind." The bill does not specify how disability would be determined, hence the Secretary of Health, Education, and Welfare under existing authority would issue regulations regarding such determinations. This bill was referred to the Ways and Means Committee.

College Scholarship Funds

Congressman Lane (D., Mass.) proposes in H. R. 6124 to establish a federal scholarship revolving loan fund, with the states contributing up to 10% of the amount advanced to its borrowers. State loans could be made only to students accepted by an educational institution. The states would furnish lists of eligible applicants to the U. S. Commissioner of Education. This measure is similar to H. R. 6079 (Boland), previously reported. Both bills were referred to the Committee on Education and Labor.

Old-Age and Survivors Insurance

A series of identical bills were introduced to broadly revise the old-age and survivors insurance system. In the House of Representatives these bills are H. R. 6128 (Perkins, D., Ky.), H. R. 6162 (Dollinger, D., N. Y.), H. R. 6163 (Fine, D., N. Y.), H. R. 6164 (Klein, D., N. Y.), H. R. 6175 (Buckley, D., N. Y.), H. R. 6180 (Rodino, D., N. J.), H. R. 6215 (Addonizio, D., N. J.), and H. R. 6229 (Metcalf, D., Mont.). These bills are identical with S. 2260, introduced by Senator Lehman of New York and 10 other Senators, and identical with 11 House bills previously reported. The major revisions (1) extend the coverage to a large group of professional and nonprofessional workers (not including physicians or dentists); (2) increase the portion of income subject to taxation; (3) increase the monthly dollar benefits; (4) increase the amount a retired person may earn from $75 to $100 per month without forfeiture of benefits; (5) provide benefits for the permanently and totally disabled; and (6) establish cash sickness benefits. These bills were referred to the Ways and Means Committee.

The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

STATE MEDICAL LEGISLATION

California

Bills Enacted.—A. 1378, has become ch. 1800 of the laws of 1953. It amends the Business and Professions Code by providing that **examinations for the physician's and surgeon's certificate** may be conducted by the board under a uniform system and for that purpose the board may make such arrangements with the organizations furnishing examination material as may in its discretion be desirable. S. 1970, has become ch. 1385 of the laws of 1953. It adds to the penal code regulations for the creation within the department of justice of a **bureau of criminal identification and investigation.**

Connecticut

Bills Enacted.—H. 407, has become public act no. 1350 of the acts of 1953. It authorizes the conducting of **postmortem examinations and autopsies** upon a written consent given by telegram and any telegram purporting to have been sent by a person authorized to give such consent shall be conclusively presumed to have been sent by such person. H. 435, has become public act no. 189 of the acts of 1953. It amends the medical practice act by, among other things, authorizing the Connecticut medical examining board, in its discretion and subject to such regulations as the board may prescribe, to issue permits to persons otherwise licensed to practice medicine in the state except that they do not meet the residence or citizenship requirements for such license or are graduates of foreign medical schools not accredited in Connecticut to serve as **interns or residents in hospitals in the state for the purpose of extending their education.**

Delaware

Bills Enacted.—H. 387, was approved July 1, 1953. It requires every physician attending or treating **epilepsy** to report such cases to the department of motor vehicles. H. 392, was approved July 1, 1953. It requires every physician attending or treating a case of **bullet wounds, gunshot wounds, powder burn, or other injury arising from or caused by the discharge of a gun, pistol, or other firearm,** or whenever such case is treated in a hospital, sanitarium, or other institution, the manager, superintendent, or other person in charge shall report such case at once to the police authorities.

Hawaii

Bills Enacted.—H. R. 19, was adopted March 12, 1953. It resolves that the directors of all public and private hospitals be encouraged to furnish adequate **dental facilities** at their respective hospitals so that they can promote public health and welfare for the people of the territory. H. 324, was approved April 22, 1953. It amends the law relating to **narcotic drugs** by, among other things, making it the duty of **every attending or consulting physician to report** to the board of health promptly the names of persons under treatment if it appears that such persons are habitual users of narcotic drugs.

Illinois

Bills Enacted.—H. R. 34, was adopted Feb. 17, 1953. It provides for the creation of a committee to investigate the need for and the desire to have a **state institution for narcotic addicts.** H. 988, was approved June 30, 1953. It provides for the construction, equipment, and operation of a **psychiatric institute state hospital** to promote and advance knowledge through research in the causes and treatment of mental illnesses, to train competent psychiatric personnel available for service in the state hospitals and elsewhere, and to contribute to meeting the need for treatment for mentally ill patients. S. 347, was approved July 6, 1953. It is a **rabies** control act. S. 412, was approved July 1, 1953. It is a **hospital licensing law.** S. 417, was approved July 1, 1953. It amends the administrative code by authorizing the department of public health to establish and enforce **minimum standards for the operation of all general hospitals.** S. 422, was approved July 7, 1953. It amends the law relating to the practice of chiropody by **defining chiropody** as the diagnosis, medical, physical, or surgical treatment of the ailments of the human foot, with the exception of administration of general anesthetics or amputation of the foot.

Massachusetts

Bill Enacted.—H. 767, has become resolution ch. 16 of the laws of 1953. It provides for the appointment of a special commission to investigate and study relative to the care, treatment, and commitment of the **criminally insane and defective delinquents.**

Michigan

Bill Enacted.—H. R. 36, was adopted May 15, 1953. It provides for the creation of a special committee to study the laws relating to **admission to mental hospitals.**

Missouri

Bills Enacted.—H. 355, was approved July 10, 1953. It repeals existing law and enacts a new law in lieu thereof relating to the hospitalization of the **mentally ill.** S. 422, was approved June 29, 1953. It is a **hospital licensing law.**

Oklahoma

Bills Enacted.—H. 846, was approved June 3, 1953. It is a **mental health law.** S. 325, was approved June 8, 1953. It is a licensing law for the regulation of **rest homes, nursing homes and related institutions.**

Pennsylvania

Bills Introduced.—H. 1562, to amend the vital statistics law, proposes to authorize the execution of the **medical certification on the death certificate by a chiropractor** who attended the deceased during his last illness. H. 1606, to amend the law relating to mental health, proposes that no officer or employee of the department of mental health, including hospital personnel, shall be held liable personally for his official conduct of the care of a patient in any action commenced by or on behalf of such patient alleging **malpractice, libel, or negligence,** unless such action sets forth facts showing conduct (1) beyond the scope and powers of such officer or employee under this act or (2) less than or beyond the usual or customary practice of caring for a patient of such type at the time of the conduct complained of. S. 757, proposes to make it a misdemeanor to fraudulently obtain **gamma globulin** from the department of health or any of its agents.

Texas

Bills Enacted.—H. 71, was approved June 8, 1953. It amends the **narcotic drug act** by, among other things, **providing penalties for sales to minors,** by adding amidone and isonipecaine and every substance neither chemically or physically distinguishable from them together with drugs found to be addiction-forming or addiction-sustaining in a manner similar to opium or cocaine to the list of narcotic drugs and by defining a licensed physician as a person duly licensed by the Texas board of medical examiners. H. 254, was approved June 13, 1953. It amends the medical practice act by, among other things, providing a penalty for failure of a licentiate to pay his **annual registration fee** whether such licentiate practices within the border of the state or not. H. 353, was approved June 8, 1953. It provides certain amendments to the **naturopathic practice act** by, among other things, terminating the grandfather clause contained in the 1949 law. H. 415, was approved May 27, 1953. It provides that consent for licensed physician to **conduct an autopsy on the body of a deceased person** shall be deemed sufficient when given by the following: in the case of a married person, the surviving spouse or if no surviving spouse by a child of such marriage, or in the event of a minor child of such marriage by the guardian, or in the absence of such guardian by the court having jurisdiction of the minor. If the deceased be unmarried it shall be given by the following: father, mother, guardian or next-of-kin or in the absence of any of the foregoing by any natural person assuming custody of and responsibility for burial, of the body. H. 559, was approved June 9, 1953. It provides for the creation of a **commission on alcoholism** to carry on a continuing study of the problems surrounding alcoholism in the state, to establish cooperative relationships with state agencies, hospitals, clinics, etc., to promote or conduct educational programs on alcoholism, to establish local alcohol clinics, etc. S. 303, was approved June 4, 1953. It provides for the creation of **county-wide hospital districts** in certain counties.

Wisconsin

Bills Enacted.—A. 238, has become ch. 411 of the laws of 1953. It provides for the issuance of licenses to practice **physical therapy** by the board of medical examiners and defines the practice of physical therapy as the treatment of disease by the use of physical, chemical and other properties of heat, cold, light, water, electricity, massage, and therapeutic exercises including posture and rehabilitation procedures, but the use of roentgen rays and radium for any purpose and the use of electricity for surgical purposes including cauterization are not included in the practice of physical therapy. The only persons who are permitted to use the term "Physical Therapist" or the initials "P. T." or similar initials indicating that they are physical therapists are those who have been issued a license by the board of medical examiners or those who are practicing under a prescription and the direct supervision of a person licensed to practice medicine and surgery. The law does not prohibit any person licensed or registered in this state under another law from engaging in the practice for which he is licensed or registered. A. 334, has become ch. 391 of the laws of 1953. It amends the law relating to **dangerous drugs** by providing that an oral prescription by telephone or otherwise for a dangerous drug shall promptly be reduced to writing and filed by the pharmacist. S. 133, has become ch. 459 of the laws of 1953. It amends the law relating to **expert testimony** by providing that no person without a license or certificate of registration from the state board of medical examiners shall have the right to testify in a professional capacity on a subject relating to medical treatment as a medical or osteopathic physician or practitioner of any other form or system of treating the sick, providing that a medical or osteopathic physician licensed to practice in another state may testify as the attending or examining physician or surgeon to the care, treatment, examination, or condition of sick or injured persons whom he has treated in the ordinary course of his professional practice for the sickness or injury which is the subject of the judicial inquiry in any action or proceeding in which he is called as a witness. Nonresident witnesses, however, shall not be permitted to testify as attending or examining physician or surgeon or as expert witness on a medical subject unless the party calling such witness has served on the opposing party a five day written notice in advance of calling such witness to testify stating the name of such witness, his residence, and business address. S. 160, has become ch. 342 of the laws of 1953. It amends the **medical practice act** by, among other things, eliminating the list of subjects in which applicants must be examined and substituting therefor the requirement that applicants must be examined in "medicine and surgery"; and also by adding to the definition of immoral or unprofessional conduct "engaging in conduct unbecoming a person licensed to practice or detrimental to the best interests of the public." S. 161, has become ch. 405 of the laws of 1953. It authorizes the board of **basic science examiners** to accept either in whole or in part the certificate of the national board of medical examiners provided that certification by the national board is accepted by the state board of medical examiners in whole or in part and has been accepted by the basic science boards of at least six other states.

MEDICAL NEWS

ARKANSAS

Medical Fund Named for Dr. Norwood.—In recognition of service rendered the Arkansas Medical Society by Dr. Merrieman L. Norwood of Lockesburg, a fund to provide for the study of medicine by state boys and girls will be known as the Norwood Fund. Dr. Norwood originated the plan to provide funds for medical study to state high school graduates needing financial assistance, who agree to return, after graduation, to some town of less than 2,000 population and remain five years.

CALIFORNIA

Dr. Goodhart Appointed Dean.—Dr. Gordon E. Goodhart, Los Angeles, who has been on the faculty of the University of Southern California School of Medicine for five years, has been named to succeed Dr. Burrell O. Raulston, dean for 10 years and on the faculty since 1929, who will become dean emeritus. Dr. Raulston was given an honorary degree of doctor of science by Southern California at its 70th annual commencement exercises June 13 "in recognition of distinguished service in the field of medicine." Dr. Goodhart was formerly director of medical extension education for the school and for the past year served as associate dean. He became affiliated with the Los Angeles County Hospital as a resident physician after World War II service as a captain in the Army Medical Corps in Europe, and became chief of the outpatient service for the County Hospital in 1948 and coordinator of its resident training program the next year.

Personal.—Dr. Ernest H. Falconer, clinical professor of medicine, University of California Medical School, San Francisco, and since 1921 chief of the blood clinic, University of California Hospital, was recently honored by his alma mater, McGill University, Montreal, Canada, which bestowed on him the degree of doctor of laws.——Dr. Richard Thomas Barton, instructor in surgery, University of Southern California School of Medicine, Los Angeles, addressed the Fifth International Congress of Otolaryngology on June 12 in Amsterdam, Netherlands. He spoke on neoplasms involving the carotid artery.——Dr. Bertram V. A. Low-Beer, professor of radiology in the University of California Medical School, Berkeley-San Francisco, recently delivered a paper on "The Internal and External Use of Radiophosphorus" at the Seventh International Congress of Radiology in Copenhagen, Denmark.——Dr. Milton V. Veldee, Los Angeles, is serving as a consultant to the Stanford Research Institute of Palo Alto and to the Michael Reese Research Foundation of Chicago. Dr. Veldee, formerly a medical director in the U. S. Public Health Service and chief of the Laboratory of Biologics Control, has resigned as vice-president and medical director of the Hyland Laboratories of Los Angeles.

CONNECTICUT

Who Pays the Hospital?—A study recently completed by the Connecticut Hospital Association, including analysis of cases and patient days in the 34 general hospitals in the state for the 12 months ended Sept. 30, 1952, shows that only 15% of patient days in Connecticut's community hospitals were paid for by the patients. Connecticut Hospital Service (Blue Cross) absorbed the costs of 50% of cases and 45.5% of patient days. Commercial insurance carriers paid 24.5% of total hospital charges in both categories, and city and town welfare budgets were called on to meet costs for only 1.5% of cases and 2.5% of patient days.

ILLINOIS

Unauthorized Cancer Fund Solicitations.—The Illinois Division of the American Cancer Society announces that it has not authorized use of its name in connection with a newspaper subscription campaign raising funds for "cancer." Professional solicitors, who promise a contribution to a "cancer fund" in return for a newspaper subscription, have been calling Chicago and suburban residents to say that the "cancer drive" has failed to reach its goal. On the contrary, the division reports, the Cancer Crusade has actually exceeded its goal and has ended as one of the most successful in history.

Chicago

Dr. Manlove Goes to Colorado.—Dr. Francis R. Manlove, associate secretary of the A. M. A. Council on Medical Education and Hospitals, has been appointed director of the University of Colorado Medical Center in Denver, dean of the department of medicine, and professor of medicine, to succeed Dr. Ward Darley, who became president of the university July 1. Until Dr. Manlove takes up his new duties shortly after Oct. 15, Dr. Robert C. Lewis, dean of the medical school, will continue as acting director of the medical center. Dr. Manlove was previously affiliated with the Mayo Foundation for Medical Education and Research, the Mayo Clinic, Rochester, Minn., and Temple University School of Medicine in Philadelphia. He is an adviser to the director of the Selective Service System and a member of several national committees on medical education.

University News.—Dr. Tibor Benedek has been appointed assistant professor of dermatology in Stritch School of Medicine of Loyola University. During World War II he was chief of the dermatological service at Fletcher General Hospital, Cambridge, Ohio, and later at the 233rd General Hospital in the Asiatic Pacific Theater.——The following appointments to the faculty of the Chicago Medical School have been announced: Dr. Irving J. Shapiro, associate professor of urology; Dr. Herman M. Soloway, associate professor of clinical genitourinary surgery; Dr. Louis Edidin, assistant professor of clinical medicine; Dr. William F. Lichtman, assistant in orthopedic surgery; Dr. Marvin Padorr, assistant in pediatrics; and Dr. Samuel Nien-Tsu Wong, instructor in surgery.——At the commencement exercises of the Chicago professional colleges of the University of Illinois, June 18, emeritus status was awarded to the following faculty members who will retire Sept. 1: Dr. Thomas Cottrell, clinical assistant professor of urology; Dr. Michael H. Ebert, clinical professor of dermatology; Drs. Georgiana Theobald and Earle B. Fowler, clinical associate professors of ophthalmology; and Dr. Sidney A. Portis, who recently resigned as clinical associate professor of medicine to enter private practice in California.

IOWA

Dr. Steindler Honored.—Dr. Arthur Steindler, head of the department of orthopedics at Mercy Hospital, Iowa City, has been made an honorary member of the British Orthopedic Association "on the basis of his outstanding contributions to orthopedic surgery in regard to the basic studies of orthopedic problems and for his major contributions of many orthopedic textbooks and articles and in particular for his outstanding efforts in training and teaching." For more than 30 years Dr. Steindler served as head of the orthopedic department of the State University of Iowa College of Medicine in Iowa City.

KANSAS

Dr. Jury Honored.—Dr. Herbert W. Jury, who at the age of 78 is still practicing after 50 years of service, was recently feted by more than 2,000 residents of Claflin and surrounding communities. Members of the Methodist WSCS, Lutheran Ladies'

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

Aid, Southern Baptist Women, and the Altar Society of the Immaculate Conception Catholic Church collected 50 silver dollars, which were hung from a gold-trimmed money tree, which they presented to Dr. Jury. He had previously been honored by the Claflin Lions Club and by the physicians of Hoisington, Ellinwood, and Great Bend.

MARYLAND

Dr. Reed Retires as Hopkins Vice-President.—Lowell J. Reed, Ph.D., vice-president of the Johns Hopkins University and Hospital and since 1949 administrative head and coordinator of all Hopkins medical activities, retired as of June 30 after 35 years as a member of the faculty and administrator. The responsibilities formerly discharged by Dr. Reed as vice-president have been assigned to the medical planning and development committee, consisting of the deans of the schools of medicine and of hygiene and public health and the director of Johns Hopkins Hospital. Dr. Reed, who has been appointed professor emeritus of biostatistics, will assist the Johns Hopkins institutions in bringing to fruition certain long-range plans, in the formulation of which he has played an important part. Dr. Reed, together with the late Raymond Pearl, Ph.D., whom he succeeded as professor of biostatistics in 1925, wrote the mathematical formula for the logistic curve as related to the growth of populations, which led to the development of epidemic theory, an explanation of the varying cycles of contagious disease in a community. Dr. Reed was a member of the President's Commission on the State of the Nation's Health and since the outbreak of World War II has been consultant on Manpower and Medical Statistics to the surgeons general of the Army, Navy, and Air Force, U. S. Public Health Service and Selective Service, U. S. State Department, National Research Council, the Veterans Administration, and a member of the National Advisory Health Council. For many years he has been a consultant and member of scientific boards of the Rockefeller Foundation, the Commonwealth Fund, and the Milbank Memorial Fund. In 1943 he was chairman of the United States delegation to the Inter-American Demographic Conference in Mexico City; in 1947 he headed the U. S. Committee on Joint Causes of Death, which won the Lasker Award in Public Health for its work on the International List on Morbidity and Mortality; and in 1948 he was named chairman of the Surgeon General's Committee on Medical School Grants and Finances. Dr. Reed was dean and director of the Johns Hopkins School of Hygiene and Public Health from 1937 to 1946, when he was appointed vice-president of the university in charge of medical activities. In 1949 he was named vice-president of the hospital, the first such dual appointment in the history of the university.

MASSACHUSETTS

Dr. Paul Patterson Goes to Albany.—Dr. Paul R. Patterson, instructor in pediatrics, Harvard Medical School, Boston, has been appointed professor of pediatrics, Albany (N. Y.) Medical College, and pediatrician-in-chief to the Albany Hospital. Dr. Patterson, who has been affiliated with the Kansas City (Mo.) General Hospital, the Research and Educational Hospitals of the University of Illinois, and the University of Illinois College of Medicine, Chicago, has served as director of the diagnostic laboratory at the Children's Medical Center, Boston.

Society News.—At the annual dinner-meeting of the Massachusetts Society of Examining Physicians at the Harvard Club in Boston, the following officers were elected: president, Dr. Charles H. Bradford, Boston, president-elect, Dr. Carl Bearse, Boston, vice-president, Dr. Ronald W. Adams, Boston, treasurer, Dr. Robert C. Gwin, Brookline, and secretary, Dr. J. Robertson Knowles, Boston.——At its annual meeting in Boston the Massachusetts Medical Society elected Dr. Frederic Hagler, Springfield, president, Dr. Curtis C. Tripp, New Bedford, president-elect, and Dr. Harvey A. Kelley, Winthrop, vice-president. Dr. Robert W. Buck, Boston, who was serving as secretary pro tem, was made secretary, and Dr. Eliot Hubbard Jr., Cambridge, was reelected treasurer.

MICHIGAN

Dr. De Jongh Wins Industrial Award.—At its recent convention in Los Angeles the Industrial Medical Association named Dr. Edwin De Jongh, medical director of the Detroit Diesel Engine Division of General Motors, as winner of the meritorious service award. Dr. De Jongh, who designed a surgical tray to be used in emergencies, was honored "for making the greatest contribution to the association."

Dr. Burley Week.—"In recognition of the splendid service to the community and the untiring efforts on behalf of its citizens and for the 60 years of service to humanity," the village president of Almont proclaimed a "Dr. Burley Week," in which the community honored Dr. David H. Burley, 89, a life member of the Michigan State Medical Society. The week of recognition started with a special service at the First Congregational Church on Sunday and ended with a potluck picnic at the school grounds on Friday, when the community's gift, a fund to help establish a 50 bed hospital, was announced.

MINNESOTA

Wangensteen Surgical Foundation Established.—The Owen H. Wangensteen Surgical Education Foundation has been established at the University of Minnesota, Minneapolis, to promote advanced surgical education. Initial funds were donated by Dr. F. John Lewis, associate professor of surgery, Dr. Richard L. Varco, professor of surgery, and Dr. Charles E. Rea, clinical associate professor of surgery. Dr. Wangensteen will act as an adviser in administration of the funds.

Personal.—Drs. William C. Mussey and Joseph B. Seagle, recently attached to the Mayo Clinic staff at Rochester, Minn., have joined the staff of Carle Memorial Hospital in Urbana, Ill. ——On a recent visit to Santiago, Chile, Dr. Thomas B. Magath of Rochester was made an honorary member of the Medical Faculty of the University of Chile in recognition of his contributions to the field of parasitology.——Dr. Donald C. Balfour, professor of surgery, University of Minnesota Graduate School, Rochester, has been elected foreign correspondent in the second division (surgery, obstetrics, and surgical specialties) by the National Academy of Medicine of France.

NEW JERSEY

Dr. Eckardt Accepts University Appointment.—Dr. Robert E. Eckardt, Linden, has been appointed an associate clinical professor of industrial medicine at the New York University College of Medicine. Dr. Eckardt is director of the medical research division of the Standard Oil Development Company.

Dr. Murn Honored.—Dr. Charles J. Murn, Paterson, a past president of the Passaic County Medical Society, was honored by Fordham University, New York, in a ceremony that paid tribute to its three oldest graduates. Dr. Murn, who graduated in the class of 1903 and has served as Paterson's health commissioner, jury commissioner, and as president of St. Joseph Hospital for many years, was congratulated by Cardinal Spellman on his years of achievement and service.

Cancer Fellowships.—The New Jersey State Department of Health announces several fellowships for residency training in oncology. Each fellowship, for one full year of training, will be granted in general oncology or in one of the special aspects of this subject; stipend is $3,600 per year. Applicants must be citizens of the United States, licensed to practice in the state of New Jersey or eligible for licensure, and must have been accepted by one of the participating institutions: Elizabeth General Hospital and Dispensary and James S. Green Memorial Tumor Clinic, Elizabeth; Memorial Center for Cancer and Allied Diseases, New York; American Oncologic Hospital and Jeanes Hospital, Philadelphia. Information and application forms may be obtained from the New Jersey State Department of Health, Bureau of Cancer Control, 65 Prospect St., Trenton.

NEW YORK

Trudeau Meeting.—The Trudeau School of Tuberculosis announces that at its recent four week course at Trudeau Sanatorium and Saranac Lake, the best attended in its 39 year history, physicians came from 11 states and 12 foreign countries: Pakistan, Thailand, Canada, Japan, China, Germany, Paraguay, India, Brazil, the Philippines, El Salvador, and Turkey. They included public health officers, staff physicians of hospitals and clinics, instructors, and physicians from the armed services.

Dr. Ingraham Named First Deputy.—Dr. Hollis S. Ingraham, Albany, who has been affiliated with the state department of health since 1934 and has served as a deputy commissioner since Aug. 1, 1948, has been appointed first deputy health commissioner, succeeding Dr. William A. Brumfield, who resigned to become professor of public health and preventive medicine at the State University of New York College of Medicine at Syracuse. Dr. Ingraham, who served during World War II as a lieutenant commander in the Navy, also saw overseas service with the U. S. Typhus Commission at Cairo, Egypt.

New York City

Increased Incidence of Tuberculosis.—According to the annual report of the New York Tuberculosis and Health Association, although the death rate from tuberculosis shows a marked decline, the incidence of new tuberculosis cases in New York City continues to rise. In the first three months of 1953, as compared with same period in 1952, new cases throughout the city increased 5% and were discovered in an advanced stage, making the cure longer and more expensive. There are presently 18,319 cases of active tuberculosis in the five boroughs. As of March 31, only half of Manhattan's 8,391 tuberculosis patients were receiving hospital care.

March of Dimes Grants.—Grants totaling $47,994 were recently received by the New York University-Bellevue Medical Center from the National Foundation for Infantile Paralysis. A grant of $15,594 will enable medical center scientists, under the direction of Mark H. Adams, Ph.D., associate professor of microbiology at New York University College of Medicine, to continue their fundamental studies and obtain further knowledge of the nutritional requirements of viruses as they multiply at the expense of the host cells. Dr. Adams' group, which previously demonstrated that certain bacterial viruses will not multiply in host cells unless fairly high concentrations of calcium are present, will now study the effect on virus multiplication of varying calcium concentrations in an effort to pinpoint the calcium dependent stage. They will also study the problem of developing mutant or hybrid virus types by reshuffling the genes that control inherited characteristics. Under the direction of Dr. Currier McEwen, dean of New York University College of Medicine, and Dr. Howard A. Rusk, chairman of the department of physical medicine and rehabilitation, $9,720 will be used toward teaching the basic concept and techniques of medical rehabilitation to medical students. An additional grant in the amount of $22,680 will enable New York University College of Medicine to expand a specialized training program in physical medicine and rehabilitation, for better care of patients handicapped by poliomyelitis and other crippling diseases.

NORTH CAROLINA

Society News.—At its annual meeting in Pinehurst the Medical Society of the State of North Carolina elected the following officers: president, Dr. Joseph A. Elliott Sr., Charlotte; president-elect, Dr. Zack D. Owens, Elizabeth City; vice-presidents, Drs. John F. Foster, Sanford, and Julian A. Moore, Asheville. Dr. Millard D. Hill, Raleigh, continues as constitutional secretary and Mr. James T. Barnes, Raleigh, as executive secretary.

Dr. Forbus Goes to Formosa.—Dr. Wiley D. Forbus, chairman of the pathology department, Duke University School of Medicine, Durham, has been granted a leave of absence to accept a six month assignment as a Mutual Security Agency consultant in Formosa. His primary task will be to assist in the rehabilitation of the National Taiwan University Medical School, Taipeh, Taiwan. This program will include setting up teaching residencies and residency training programs, as well as establishing diagnostic laboratories in the hospital and medical school and planning the school's curriculum.

OHIO

Memorial to Classmate.—The seniors of the University of Cincinnati College of Medicine honored the memory of one of their classmates, Herbert N. Schiff, who was killed in an automobile accident during his sophomore year, by electing his father, Dr. Leon Schiff, an honorary member of the class. Dr. Schiff is associate professor of medicine in the college of medicine. About $10,000 has already been contributed to the Herbert N. Schiff memorial fund in the college of medicine.

Dr. Brower Receives Award.—Dr. Alonzo B. Brower, Dayton, was recently given the Alfred Stengel memorial award by the American College of Physicians. The award is made periodically to a fellow of the college "who, by virtue of his loyalty and service to the college, deserves an honor from it that is unique" and who has had "an outstanding influence in maintaining and advancing the best standard in medical education, medical practice and clinical research." In 1950, Dr. Brower established an endowment trust that provides an opportunity for worthy young physicians to go as visiting fellows to some institution for the purposes of observation and postgraduate study. Dr. Brower has been a member of the staff of St. Elizabeth Hospital and a director of the medical staff of Miami Valley Hospital for many years. He is a past president of the Montgomery County Medical Society.

PENNSYLVANIA

Dewees Public Health Scholarship.—The Pennsylvania Tuberculosis and Health Society announces the establishment of the Arthur Markley Dewees scholarship for advanced study of public health in recognition of the services of Dr. Dewees as executive secretary of the society from 1919 to 1952. The scholarship (stipend $2,000) is to be awarded annually to a Pennsylvanian for one year's graduate study in an accredited school of public health leading to a masters degree or in any recognized graduate school offering a curriculum designed to prepare a student for administrative or other professional service in tuberculosis or public health work.

Philadelphia

Personal.—A portrait of Dr. Charles M. Gruber, professor of pharmacology at Jefferson Medical College, Philadelphia, was recently presented to the college by the senior class.——Dr. Harold A. Taggart, assistant dean of Hahnemann Medical College and Hospital of Philadelphia, is serving as acting medical director of Hahnemann Hospital until a permanent appointment is made to fill the vacancy created when Dr. Charles E. Price left to become medical director of the General Hospital of Fresno County, Fresno, Calif.

Dr. Appel Heads Psychiatric Department.—Dr. Kenneth E. Appel, professor of psychiatry, University of Pennsylvania School of Medicine, was recently appointed as chairman of the department, succeeding Dr. Edward A. Strecker, who has been professor of psychiatry since 1931 and now becomes emeritus professor of psychiatry. Dr. Appel, who is also director of the Functional Diseases Service of the University of Pennsylvania Hospital, has been affiliated with the university since 1924. He was named president-elect of the American Psychiatric Association at the annual meeting in Los Angeles, and is president of the Marriage Council of Philadelphia, which recently became affiliated with the School of Medicine of the University of Pennsylvania. Dr. Strecker will continue as a member of the faculty of the graduate school of medicine and as chief of service and consultants at the Institute for Mental Hygiene, which is affiliated with the Pennsylvania Hospital.

SOUTH CAROLINA

Orthopedic School Group.—The following physicians of Charleston have volunteered to serve on the medical advisory committee for the new Easter Seal Orthopedic School: Joseph I. Waring, B. Owen Ravenel, Bachman S. Smith, John A. Siegling, and James J. Cleckley. They will screen all applications and make final decisions on enrollment in the school. Children attending the Easter Seal Orthopedic School will receive physical, occupational, and speech therapy, if necessary, in addition to special education.

TENNESSEE

Society News.—The Tennessee Diabetes Association has elected the following officers: president, Dr. Daniel R. Thomas, Knoxville, vice-president, Dr. Robert F. Ackerman, Memphis, and secretary-treasurer, Dr. Jean M. Hawkes, Memphis.——At its recent semiannual meeting the Middle Tennessee Medical Association elected Dr. Taylor Farrar, Shelbyville, president, Dr. S. Ogle Jones, Centerville, president-elect, and Dr. Frank G. Witherspoon, Nashville, secretary-treasurer. The next semiannual meeting of the association will be held in Murfreesboro on Nov. 19.——Officers of the newly formed Tennessee Heart Association include Dr. Benjamin F. Byrd Sr., Nashville, president, Dr. Philip H. Livingston, Chattanooga, vice-president, John W. Apperson, Memphis, secretary, and Laurie F. Pratt, Knoxville, treasurer. The state office of the association is in Nashville.

Personal.—Dr. Robert H. Hutcheson, Franklin, has been reappointed state health commissioner, a position that he had held since 1943 under three previous administrations. Dr. Hutcheson has served as a member of the A. M. A. House of Delegates and president of the State and Territorial Health Officers' Association, and has been assistant professor of medicine at Vanderbilt University School of Medicine, Nashville.——Dr. James A. Taylor, senior psychiatrist at VA Hospital (Kennedy), Memphis, has been appointed assistant professor of psychiatry and neurology and clinical director at the Gailor Memorial Psychiatric Hospital, Memphis. Dr. Taylor was previously affiliated with Kings Park State Hospital, Kings Park, N. Y.——Dr. Cyril J. Ruilmann, who has directed Gailor Memorial Psychiatric Hospital for the last 10 years, has been chosen by Governor Clement to head the new Tennessee Department of Mental Health.——During the week of April 12 Dr. R. Eustace Semmes, University of Tennessee College of Medicine, Memphis, occupied the George A. Ball Visiting Professorship in Surgery, recently inaugurated at the Indiana University School of Medicine, Indianapolis, by the James Whitcomb Riley Memorial Association.——Dr. Robert C. Little, associate professor of physiology at the University of Tennessee Medical Units, Memphis, has been appointed associate professor of medicine in the division of internal medicine. Dr. Little, author of numerous publications in cardiovascular research, will continue his investigations in this field, in addition to his teaching duties.——A portrait of Dr. F. Thomas Mitchell, chief, division of pediatrics, University of Tennessee College of Medicine, Memphis, was presented to the university June 11. The portrait is the gift of Memphis pediatricians. Dr. Mitchell has been on the staff of the College of Medicine since 1917.

TEXAS

Dr. Hertell Named for Red Cross Post.—Dr. Joseph Alan Hertell, who has served for 13 months as director and administrator of the Central Texas Red Cross regional blood center at Waco, has been appointed assistant director of the national Red Cross blood program.

Alumni Honor Dr. Moursund.—Honoring Dr. Walter H. Moursund Sr., retiring dean, the annual banquet of the Baylor University College of Medicine Alumni, recently held in Houston, was attended by more than 600 persons. Dr. Cecil F. Jorns, Houston, president of the Alumni Association, presided. An engraved watch was presented to Dr. Moursund. Officers elected were Dr. Richard H. Harrison Jr., Bryan, president-elect; Drs. Robert G. McCorkle Sr., San Antonio, and Hannibal L. Jaworski, Waco, vice-presidents; and Dr. John C. Haley, Houston, secretary-treasurer.

VERMONT

Biggs Award to Dr. Wadsworth.—Dr. Augustus B. Wadsworth, Manchester, director of the division of laboratories and research, New York State Department of Health, 1914-1945, is the recipient of the Hermann M. Biggs memorial award by the New York State Public Health Association. The citation described Dr. Wadsworth as "founder of the public health laboratory system of New York State, which today is outstanding in the world; developer of recognized standards for laboratory techniques in sanitation and in the diagnosis of infectious diseases; an outstanding investigator in the field of infection, and in the assay of therapeutic antisera; a pioneer in the study of endocarditis following pneumococcus infection; a leader in the development of the quantitative complement fixation test for the serodiagnosis of syphilis and other infectious diseases . . ."

VIRGINIA

Governor Appoints Tuberculosis Control Committee.—Gov. John S. Battle has appointed the following physicians on a committee "to serve in an advisory capacity to the State Board of Health and to make recommendations and suggestions as it deems appropriate" in the fight to eradicate tuberculosis: John T. T. Hundley, Lynchburg; Andrew D. Hart and Everett C. Drash, Charlottesville; Felix J. Brown and Edward S. Ray, Richmond; Frank R. Trigg and Samuel E. Hughes Jr., Norfolk; George W. Oast, Portsmouth; Lemuel R. Broome, Danville; and James N. Dudley, Roanoke.

Society News.—The Virginia Surgical Society, recently organized at a luncheon meeting at the Richmond Academy of Medicine Building, elected the following officers: president, Dr. Randolph H. Hoge, Richmond; vice-president, Dr. Hugh H. Trout Jr., Roanoke; secretary, Dr. Robert L. Payne Jr., Norfolk; and treasurer, Dr. William R. Hill, Richmond. Elected to the council were Drs. Edwin P. Lehman, Charlottesville; Isaac A. Bigger, Richmond; Edmund Horgan, Winchester; and Richard P. Bell Jr., Staunton. The next meeting of the society will be held during the annual meeting of the Medical Society of Virginia at Roanoke, Oct. 18-21.

WEST VIRGINIA

University News.—Daniel Thomas Watts, Ph.D., Charlottesville, associate professor of pharmacology at the University of Virginia School of Medicine since 1949, has accepted appointment as professor and head of the department of pharmacology at West Virginia University School of Medicine, Morgantown. Dr. Watts, who served in the U. S. Naval Reserve as an ensign until 1947 and was released with the rank of lieutenant commander, taught and conducted research in aviation physiology.

Meeting on Infectious Diseases.—A program on infectious diseases, sponsored by Lederle Laboratories, will be presented by the West Virginia Academy of General Practice at the Hotel Fairmont in Fairmont, Aug. 16. Subjects to be discussed include rabies, poliomyelitis, infectious hepatitis, genitourinary infections, atypical pneumonia, infectious pneumonia, infectious mononucleosis, and histoplasmosis. The morning session, which will begin at 10 o'clock, will be followed by a luncheon at the Hotel Fairmont, with Lederle Laboratories as host. Panel discussions will follow both the morning and the afternoon programs. All members of the medical profession in West Virginia are invited to attend the meeting.

WYOMING

State Medical Election.—At the annual meeting the Wyoming State Medical Society installed Dr. James W. Sampson, Sheridan, as president and elected Dr. Bernard J. Sullivan, Laramie, president-elect, Dr. Nels A. Vicklund, Thermopolis, vice-president, Dr. Royce D. Tebbet, Casper, secretary, and Dr. Curtis L. Rogers, Sheridan, treasurer. The annual session of 1954 will be held during the first week in June in Sheridan.

GENERAL

Visiting Scientists.—Dr. H. E. Holling of the Medical Research Council's Clinical Research Unit at Guy's Hospital, London, England, is spending some time in the United States at the invitation of the University of Pennsylvania School of Medicine, Philadelphia. He will also make a few visits on behalf of the Medical Research Council, including attendance at the International Physiology Congress in Montreal. Address: U. K. Scientific Mission, 1800 K St., N.W., Washington, D. C.——Dr. A. D. Macrae, Public Health Laboratory Service (directed by the Medical Research Council on behalf of the Ministry of Health, United Kingdom), is completing a year at Yale University under a Smith-Mundt award supplemented by assistance from the Yale authorities.

Diathermy Machines for Korea.—Pointing out that a Federal Communications Commission ruling has outlawed use in the United States of thousands of short-wave diathermy machines whose frequencies interfere with radio and television programs as well as with police and defense communication channels, Dr. Howard A. Rusk, director of the Institute for Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, advises that these machines are needed for treatment of crippled and sick persons in Korea. Most of the machines built before 1947 will have to be scrapped. Dr. Rusk, who is medical adviser to the American-Korean Foundation (303 Lexington Ave., New York 16), which is currently conducting a campaign for 5 million dollars to provide emergency relief for Korea, states that the foundation has received requests for more than 25 machines. Three, a gift from the physicians' supply firm of Cole, Dominick and Rogg, Inc., will be used at a 900 bed rehabilitation center that the foundation is helping to set up and staff at Tongnae in Korea. Requests for diathermy equipment have also been received from the Severance Hospital and Maryknoll Sisters Clinic in Pusan.

Congress on Electroencephalography.—The International Congress of Electroencephalography and Clinical Neurophysiology will be held at Agassiz House, Radcliffe College, Cambridge, Mass., Aug. 16-21. The presidential address will be delivered at 1:30 p. m. by Dr. Alexander Forbes, Boston. Symposiums to be presented in the Agassiz House auditorium include: "Recent Developments in Electroencephalographic Techniques," "Physiological Basis of the Electroencephalogram," "Interpretation of the Electroencephalogram," "Evaluation of Activation of the Electroencephalogram," "Interrelationships Between Cortex and Subcortical Structures," and "Characteristics and Significance of Seizure Discharges," in collaboration with the American League Against Epilepsy. Tuesday evening will be devoted to cinematographic presentations. After the morning session on Wednesday the day has been reserved for a social afternoon and evening, which will include a shore party at Crane Beach and Bird Sanctuary at Ipswich. The informal dinner at the Hotel Continental Friday, 8 p. m., will be preceded by a cocktail party in the gardens of the hotel for foreign members and their wives, who will be guests of the American League Against Epilepsy.

Gerontologists Meet in San Francisco.—The annual scientific meeting of the Gerontological Society, Inc., will be held at the Hotel Mark Hopkins, San Francisco, Aug. 25-27. The general session will open Tuesday, 9:30 a. m., in the Room of the Dons with presentation of "New Roles for the Aging," "Gerontological Implications in Pharmacology," "Mental Health and Aging," "Biochemical Aspects of Aging," and "Education for Aging." The sessions will end with a symposium on arteriosclerosis Thursday, 3:15 p. m., in the Golden Empire Room, when Albert I. Lansing, Ph.D., St. Louis, will serve as chairman for the following panel: Dr. James F. Rinehart, San Francisco, Dr. Charles A. Woerner, Louisville, Dr. Silas M. Evans, Milwaukee, and Henry S. Simms, Ph.D., New York. The San Francisco Regional Office of the U. S. Department of Health, Education and Welfare has arranged a program on motion pictures on aging for Tuesday evening in the Room of the Dons, with Dr. Henry C. Schumacher, San Francisco, regional mental health consultant, Public Health Service, as discussant. Cocktails, Thursday, 6 p. m., will precede the annual dinner in Peacock Court, which will be addressed by Dr. Emund V. Cowdry, St. Louis, president, and Dr. J. H. Sheldon, Royal Hospital, Wolverhampton, England. The National Committee on Aging of the National Social Welfare Assembly will hold an all day meeting, Aug. 28, at Hotel Mark Hopkins. The luncheon meeting, "In the Vanguard of Service Programs for Older People on the West Coast," and the afternoon sessions will be open meetings. The morning will be devoted to a meeting of the West Coast Advisory Committee to the project on criteria for the continued employment of older workers and a business session on activities and plans of the National Committee on the Aging. Attendance at these meetings will be limited to members of the committee and their invited guests.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

Area	July 18, 1953		July 19, 1952 Total
	Paralytic Type	Total Cases Reported	
New England States			
Maine	4	5	..
New Hampshire	..	5	..
Vermont	..	..	1
Massachusetts	5	14	..
Rhode Island	3	3	..
Connecticut	2	15	6
Middle Atlantic States			
New York	23	103	68
New Jersey	9	26	16
Pennsylvania	..	35	18
East North Central States			
Ohio	18	63	69
Indiana	..	23	22
Illinois	17	72	46
Michigan	17	62	56
Wisconsin	..	9	26
West North Central States			
Minnesota	22	46	27
Iowa	6	10	82
Missouri	11	42	13
North Dakota	..	1	..
South Dakota	..	4	15
Nebraska	6	14	55
Kansas	..	20	37
South Atlantic States			
Delaware	..	..	3
Maryland	20	34	7
District of Columbia	1	3	1
Virginia	27	55	17
West Virginia	5	14	22
North Carolina	23	88	14
South Carolina	3	10	1
Georgia	4	27	24
Florida	7	25	22
East South Central States			
Kentucky	6	25	73
Tennessee	14	62	24
Alabama	9	29	20
Mississippi	..	21	51
West South Central States			
Arkansas	6	19	14
Louisiana	8	23	83
Oklahoma	9	30	46
Texas	15	86	243
Mountain States			
Montana	9	11	6
Idaho	..	..	4
Wyoming	..	2	1
Colorado	..	4	10
New Mexico	..	8	19
Arizona	2	7	8
Utah	..	10	4
Nevada	..	3	..
Pacific States			
Washington	..	8	38
Oregon	2	4	19
California	33	62	59
Territories and Possessions			
Alaska	2	5	..
Hawaii	1	1	12
Puerto Rico	..	..	1
Total	349	1,202	1,403

Communicable Diseases During the First Half of 1953.—According to a report from the Department of Health, Education and Welfare, U. S. Public Health Service, comparison of communicable disease cases reported during the first half of 1953 and those reported during the like period in 1952 shows the following results:

Disease	First 26 Weeks 1953	First 26 Weeks 1952
Anthrax	20	19
Botulism	6	8
Brucellosis (undulant fever)	826	1,061
Diphtheria	1,050	1,403
Encephalitis, acute infectious	530	620
Hepatitis, infectious and serum	17,390	9,001
Malaria: civilian	231	423
military	289	2,516
Measles	388,581	622,900
Meningococcic infections	3,301	2,989
Poliomyelitis, acute	4,680	4,176
Rabies in man	3	8
Rocky Mountain spotted fever	130	131
Scarlet fever and streptococcic sore throat	95,067	72,305
Smallpox	16	13
Trichinosis	221	193
Tularemia	280	345
Typhoid	888	944
Typhus, endemic	105	86
Whooping cough	16,991	27,329
Rabies in animals	4,033	4,636

Annual Meeting of National Medical Association.—The annual meeting of the National Medical Association will be held at the Meharry Medical Center, Nashville, Tenn., Aug. 10-14, under the presidency of Dr. Whittier C. Atkinson, Coatesville, Pa. Monday morning the public health section will hold an open public meeting in the auditorium. The general sessions will open Tuesday, 9 a. m., when a panel honoring the Nashville founders of the association will be presented. The presidential address will be delivered shortly before adjournment. The medical section will hold clinicopathological conferences Tuesday, 4:30 p. m., Thursday and Friday, 11:30 a. m., and a panel discussion on blood diseases Wednesday at 4 p. m. The section on pediatrics will present a clinical panel on "Common Problems Arising in the Care of Infants and Children" Tuesday, 4 p. m. During pediatric ward rounds at the George W. Hubbard Hospital of Meharry Medical College Wednesday afternoon there will be a "Cine Lecture on Ventricular Filbrillation and Defibrillation" 2:10 p. m., and at 4:30 p. m. a fracture consultation panel. The section on surgery, urology, and orthopedics, which will share in this program, will conduct operative clinics at Vanderbilt University on Tuesday morning and at Hubbard Hospital on Thursday and Friday mornings, and will hold an open meeting in the auditorium at Meharry on Wednesday. A panel discussion on peptic ulcers will be presented at 9:40 a. m., and at 11:15 a. m. Dr. Clarence S. Greene, associate professor of surgery, Howard University College of Medicine, Washington, D. C., will deliver the Stubbs Oration in Surgery on "Astrocytomas." On Thursday, 10:30 a. m., during the open meeting in the amphitheater the radiology section will present a symposium on "Problems of the Urinary Tract with Special Reference to Radiologic Procedures." The final session of the medical section on Friday will feature a symposium on cancer at 10:30 a. m. by Drs. Jack E. White, assistant professor of surgery and director of the Cancer Detection Clinic of Freedmen's Hospital, Washington, D. C., John F. W. King, Wilmington, Del., director of surgery section, American Cancer Society, and Ralph R. Braund, coordinator of cancer, University of Tennessee College of Medicine, Memphis. Tuesday night has been reserved for the welcome night program in the Mount Olive Baptist Church, 9th and Charlotte, at which Dr. Daniel T. Rolfe, Nashville, will preside. The president's grand ball will be held Thursday at 9 p. m., and the incoming president, Dr. A. Porter Davis, Kansas City, Kan., will deliver an address immediately preceding adjournment of the general sessions Friday afternoon.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Clinical Session, St. Louis, Dec. 1-4.
1954 Annual Session, San Francisco, June 21-25.
1954 Clinical Session, Miami, Florida, Nov. 30-Dec. 3.
1955 Annual Session, Atlantic City, N. J., June 6-10.
1955 Clinical Session, Boston, Nov. 29-Dec. 2.

Public Relations Institute, Drake Hotel, Chicago, Sept. 2-3. Mr. Leo E. Brown, 535 North Dearborn St., Chicago 10, Director.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, The Homestead, Hot Springs, Va., Sept. 10-12. Dr. William F. Mengert, 2211 Oak Lawn Ave., Dallas, Texas, Secretary.

American Congress of Physical Medicine, Palmer House, Chicago, Aug. 31-Sept. 4. Dr. Walter J. Zeiter, 30 North Michigan Ave., Chicago 2, Executive Director.

American Dietetic Association, Los Angeles, Aug. 24-28. Miss Ruth M. Yakel, 620 N. Michigan Ave., Chicago 11, Executive Secretary.

American Electroencephalographic Society, Commander and Continental Hotels, Cambridge, Mass., Aug. 17-22. Dr. John A. Abbott, Massachusetts General Hospital, Boston 14, Secretary.

American Hospital Association, San Francisco, Aug. 31-Sept. 3. Mr. George Bugbee, 18 East Division St., Chicago 11, Executive Director.

American Society for Pharmacology and Experimental Therapeutics, Fall Meeting, Yale University, New Haven, Conn., Sept. 7-9. Dr. Carl C. Pfeiffer, 1853 West Polk St., Chicago 12, Secretary.

Biological Photographic Association, Hotel Statler, Los Angeles, Aug. 31-Sept. 3. Miss Jane H. Waters, 533 West 57th St., New York 19, Secretary.

Gerontological Society, Mark Hopkins Hotel, San Francisco, Aug. 25-27. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

Montana Medical Association, Northern Hotel, Billings, Sept. 17-20. Mr. L. R. Hegland, 104 North Broadway, Billings, Executive Secretary.

National Medical Association, Nashville, Tenn., Aug. 10-14. Dr. John T. Givens, 1108 Church St., Norfolk 10, Va., Executive Secretary.

North Pacific Society of Internal Medicine, Harrison, B. C., Sept. 18-19. Dr. Clarence C. Pearson, 1115 Terry Ave., Seattle 1, Wash., Secretary.

Regional Meetings, American College of Physicians:

- North Dakota, Fargo, Sept. 12. Dr. Robert B. Radl, 221 Fifth St., Bismarck, Governor.
- Arkansas-Oklahoma, Tulsa, Okla., Sept. 19. Dr. Wann Langston, 117 North Broadway, Oklahoma City 2, Governor.

Society of American Bacteriologists, Palace Hotel, San Francisco, Aug. 10-14. Dr. John H. Bailey, Sterling-Winthrop Research Institute, Rensselaer, N. Y., Secretary.

U. S. Chapter, International College of Surgeons, Waldorf-Astoria, New York, Sept. 13-17. Dr. Karl Meyer, 1516 Lake Shore Drive, Chicago 10, Secretary.

Utah State Medical Association, Salt Lake City, Sept. 10-12. Dr. Homer E. Smith, 42 South Fifth East St., Salt Lake City 2, Secretary.

Washington State Medical Association, Olympic Hotel, Seattle, Sept. 13-16. Dr. Bruce Zimmerman, 338 White-Henry-Stuart Bldg., Seattle 1, Secretary.

FOREIGN

Association of Surgeons of Great Britain and Ireland, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

Canadian Medical Association, Vancouver, B. C., Canada, June 18-22, 1954. Dr. T. C. Routley, 135 St. Clair Ave. W., Toronto 5, Ont., Canada, General Secretary.

Congress of International Anesthesia Research Society, Chateau Frontenac, Quebec, Canada, October 26-29. Dr. A. William Friend, 515 Nome Ave., Akron 20, Ohio, Chairman, Program Committee.

Congress of the International Association of Limnology, Cambridge and Windermere, England, Aug. 20-30. For information write: Professor G. C. Hutchinson, Osborn Zoological Laboratory, Yale University, New Haven, Conn., U. S. A.

Congress of the International League Against Rheumatism, Geneva, Switzerland and Aix-les-Bains, France, Aug. 23-29. For information write: Dr. W. Tegner, The London Hospital, London E.1, England.

Congress of the International Society of Angiology, Lisbon, Portugal, Sept. 18-20. Dr. Henry Haimovici, 105 East 90th St., New York 28, N. Y., U. S. A., Secretary.

Congress of the International Society of Surgery, Lisbon, Portugal, Sept. 14-20. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

Interim Meeting, Aero Medical Association, University of Brussels Medical School, Brussels, Belgium, Sept. 24-27. Dr. Andre Allard, Medical Director of SABENA, 145 Rue Royale, Brussels, Belgium, Secretary.

International Cancer Congress, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, *President.*

International Conference on Thrombosis and Embolism, Basle, Switzerland, July 15-19, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

International Congress of Acupuncture, Kolpinghaus, Adolf-Kolping-Strasse 1, Munich, *Germany, August 22-25. Dr. G. Bachmann,* 29 Lilienstrasse, München 9, Germany, Organizer and Secretary.

International Congress of Electroencephalography and Clinical Neurophysiology, Boston, Mass., U. S. A., Aug. 18-21. Dr. Robert S. Schwab, Massachusetts General Hospital, Boston 14, Mass., U. S. A., Secretary-General.

International Congress of the European Society of Haematology, Amsterdam, Holland, Sept. 8-12. Dr. M. C. Verloop, Maliesingle 15, *Utrecht, Holland, Secretary.*

International Congress on Genetics, Bellagio, Italy, August 24-31. Prof. C. Barigozzi, Instituto de Genetica, Universita de Milano, 10 via Celoria, Milan, Italy, Secretary.

International Congress of Hippocratic Medicine, Evian, France, Sept. 3-6. Prof. P. Delore, 13, rue Jarente, Lyon, France, Secretary-General.

International Congress for History of Science, Jerusalem, Israel, August 3-7. Prof. F. S. Bodenheimer, Hebrew University, Jerusalem, Israel, President.

International Congress of Hydroclimatism and Thalassotherapy, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni Venac 1, Belgrade, Yugoslavia, Secretary General.

International Congress of International College of Surgeons, Sao Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U.S.A., Secretary-General.

International Congress of Logopedics and Phoniatrics, Zurich, Switzerland, Sept. 1-5. Dr. Deso A. Weiss, 115 East 86th St., New York 28, N. Y., U. S. A., General Secretary.

International Congress on Mental Health, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

International Congress of Microbiology, Rome, Italy, Sept 6-12. For information write: Dr. V. Puntoni, Citta Universitaria, Rome, Italy.

International Congress on Obstetrics and Gynecology, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

International Congress of Paediatrics, Havana, Cuba, Oct. 12-17. Prof. Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba, President.

International Congress of Psychology, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

International Congress for Psychotherapy, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

International Congresses of Tropical Medicine and Malaria, Istanbul, Turkey, Aug. 28-Sept. 4. Professor Dr. Ihsan Sükrü Aksel, Tunel Meydam, Beyoglu, Istanbul, Turkey, General Secretary.

International Congress of Zoology, Copenhagen, Denmark, Aug. 5-12. Dr. Anton F. Bruun, The University, Copenhagen, Denmark, Secretary *General.*

International Gerontological Congress, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

International Leprosy Congress, Madrid, Spain, Oct. 3-10. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

International Neurological Congress, Lisbon, Portugal, Sept. 7-12. Prof. Almeida Lima, Avenida do Brazil 53, Lisbon, Portugal, Secretary-General.

International Office of Documentation of Military Medicine, Rome, Italy, Oct. 14-18. Colonel Medecin Prof. A. Campana, Office of the Ministero della Difesa-Esercito, Rome, Italy, Secretary.

International Physiological Congress, Montreal, Canada, Aug. 31-Sept. 4. Dr. A. S. V. *Burgen, Dept. of Physiology, McGill University,* Montreal, Canada, Secretary.

International Society for the Study of Biological Rhythms, Basle, Switzerland, Sept. 18-19. For information write: Prof. Dr. F. Georgi, Neurologische Universitats-Poliklinik, Socinstrasse 55, Basle, Switzerland.

International Veterinary *Congress, Stockholm, Sweden, Aug. 9-15. Prof.* Axel Isaksson, Institute of Veterinary Medicine, Stockholm 50, Sweden, Secretary.

Journees Medicales, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geofroix, Colombes (Seine) France.

Latin American Congress of Obstetrics and Gynecology, Buenos Aires, Argentina, Oct. 26-31.

Latin American Congress of Otorhinolaryngology, Caracas, Venezuela, Feb. 21-25, 1954. Dr. Victorino Marquez Reveron, Centro Medico, Caracas, Venezuela, Secretary-General.

Pacific Science Congress, Quezon City and Manila, Philippines, Nov. 16-28. Dr. Patrocinio Valenzuela, College of Pharmacy, University of the Philippines, Quezon City, Philippines, Secretary-General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, Mexico, D.F., Mexico, Feb. 28-March 4, 1954.

Pan American Medical Women's Alliance, Beekman Towers Hotel, New York, N. Y., Sept. 24-Oct. 1. Dr. Ina Marsh, 140 Linwood Ave., Buffalo, N. Y., U. S. A., Registration Chairman.

Persian Gulf Medical Society, Dhahran, Saudi Arabia, Dec. 7-8. Dr. N. J. *Conan Jr., Department* of Internal Medicine, Arabian American Oil Company, Dhahran, Saudi Arabia, Secretary.

Sectional Meeting, American College of Surgeons, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

World Conference on Medical Education, British Medical Association House, Tavistock Square, W.C.1, London, England, Aug. 22-29. Secretariat: World Medical Association, 2 East 103d St., New York 29, N. Y., U. S. A.

World Congress of the World Confederation for Physical Therapy, London, England, Sept. 7-12. Miss M. J. Neilson, Chartered *Society of* Physiotherapy, Tavistock House, South, Tavistock Square, London, W.C.1, England, Secretary.

World Federation for Mental Health, Vienna, Austria, Aug. 17-23. For information write: Miss E. M. Thornton, 19 Manchester St., London, W.1, England.

World Medical Association, The Hague, Netherlands, Aug. 31-Sept. 7. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., Secretary-*General.*

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* All centers where there are five or more candidates. Sept. 8-10 (Part I only). *Candidates may file applications at any time, but the National Board must* receive them at least six weeks before the date of the examination they wish to take. Exec. Sec., Dr. John P. Hubbard, 133 South 36th St., *Philadelphia 4.*

EXAMINING BOARDS IN SPECIALTIES

American Board of Dermatology and Syphilology: All candidates must now pass a written examination. *Written.* Various centers, Sept. 3. *Oral.* Philadelphia, Oct. 16-18. To be eligible, candidate must complete 36 months of training before Oct. 1. Final date for filing applications was May 1. Exec. Sec., Miss Janet Newkirk, 66 East 66th St., New York 21.

American Board of Internal Medicine: Oral. San Francisco, Sept. 30-Oct. 2, Chicago, Nov. 30-Dec. 2. The closing date for acceptance of applications for the San Francisco and Chicago oral examination was April 1. *Written. October 19. The closing date for acceptance of applica*tions was May 1. Exec. Sec.-Treas., Dr. William A. Werrell, 1 West Main St., Madison 3.

American Board of Neurological Surgery: *Oral.* New Haven, October. Final date for filing application was July 1, Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, Kingshighway and Euclid Ave., St. Louis.

American Board of Obstetrics and Gynecology: *Written.* Various cities of the United States and Canada, Feb. 5. *Application for examination* or re-examination, as well as requests for resubmission of case reports, must be made prior to October 1. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: Chicago, Oct. 5-9. *Written.* Various Centers, January 1954. Final date for filing applications was July 1. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

American Board of Orthopaedic Surgery: Chicago, January 1954. Final date for filing application is August 15. Sec., Dr. Harold A. Sofield, 122 S. Michigan Ave., Chicago 3.

American Board of Otolaryngology: *Oral.* Chicago, Oct. 5-9. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

American Board of Pathology: *Written. Pathologic Anatomy and Clinical Pathology. Chicago, Oct. 8-10. Sec., Dr.* William B. Wartman, 303 E. Chicago Ave., Chicago.

American Board of Pediatrics: *Oral.* Miami, Oct. 9-11; Indianapolis, Dec. 4-6. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Plastic Surgery: *Entire Examination.* San Diego, Oct. 29-31. Final date for receipt of case reports was June 1. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

American Board of Proctology: *Part II. Oral and Written. Anorectal Surgery and Proctology.* Philadelphia, Sept. 19. Sec., Dr. Louis A. Buie, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: *Oral. Radiology, Roentgenology, Diagnostic Roentgenology and Therapeutic Radiology.* Chicago, Dec. 6-11. *Final date for filing application* was July 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

Board of Thoracic Surgery: *Written.* Various centers throughout the country, September 11. Final date for filing application was *July 1. Sec.,* Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2.

DEATHS

Friedman, Emanuel David ⊕ New York City; born in New York Aug. 25, 1884; University and Bellevue Hospital Medical College, New York, 1907; instructor in medicine from 1913 to 1918 at his alma mater, where he was instructor of neuropathology from 1919 to 1922, lecturer of neuropathology from 1922 to 1924, clinical professor of neurology from 1924 to 1927, and professor of neurology and head of the department from 1927 to 1947, when he became professor emeritus; specialist certified by the American Board of Psychiatry and Neurology; member of the American Neurological Association, American Psychiatric Association, Harvey Society, Phi Beta Kappa, Phi Delta Epsilon, Alpha Omega Alpha, New York University chapter of Sigma Xi, Association for Research in Nervous and Mental Diseases, New York Academy of Medicine, and the New York Neurological Society, of which he was vice-president in 1938-1939 and president 1939-1940; president of the New York University College of Medicine Alumni Association 1937-1938; in 1949 received from the City College the Townsend Harris medal for outstanding postgraduate achievement in "some significant field of human endeavor"; member of the subcommittee on technical and scientific research, Noise Abatement Commission of New York City; chairman of the committee on neurology of Workmen's Compensation Board from 1935 to 1938; during World War I contract surgeon in the Army; neuropsychiatrist for the New York Medical Advisory Board under Selective Service Act from 1940 to 1943; lecturer, New York University School of Military Neuropsychiatry, 1944-1945; at various times on the staffs of the Israel Zion Hospital in Brooklyn, Bellevue Hospital, Montefiore Hospital for Chronic Diseases, Beth Israel Hospital, New York University division, Goldwater Memorial Hospital, Manhattan General Hospital, and Beth David Hospital; consultant in neuropsychiatry at the Veterans Administration; died in the Mount Sinai Hospital June 7, aged 68, of carcinoma of the stomach.

Harvey, James Alexander ⊕ Pasadena, Calif.; born in Chicago Nov. 6, 1867; Rush Medical College, Chicago, 1896; took postgraduate work at the universities of Glasgow, Vienna, and Berlin; member of the Illinois State Medical Society, Institute of Medicine of Chicago, Chicago Tuberculosis Institute, Society of Medical History, and the Association of Military Surgeons of the United States; an Associate Fellow of the American Medical Association; fellow of the American College of Surgeons; served as a colonel in the medical corps of the American Expeditionary Forces in France during World War I; for many years practiced in Chicago, where he was instructor in anatomy and surgery and assistant professor at his alma mater from 1899 to 1912, on the staffs of St. Luke's. Hospital, Chicago Baptist Hospital, and on the advisory board of the Chicago Tuberculosis Sanitarium; died June 12, aged 85, of cerebral thrombosis.

Christianson, Harry Walter ⊕ Minneapolis; born in Belgrade, Minn., Aug. 5, 1893; University of Minnesota Medical School, Minneapolis, 1921; clinical assistant professor of surgery at his alma mater; specialist certified by the American Board of Proctology; specialist certified by the American Board of Surgery; member of the American Proctologic Society, Minneapolis Clinical Club, the Alumni Association of the Mayo Foundation, Phi Delta Chi, and Phi Beta Pi; fellow of the American College of Surgeons; entered the Mayo Foundation, Rochester, Minn., as a fellow in proctology in October, 1929, and left in October, 1932; served during World War II; on the staffs of the University of Minnesota, Minneapolis General, St. Barnabas, St. Andrew's, Norwegian Deaconess, Fairview, and Swedish hospitals; consulting proctologist, Maternity Hospital and University Health Service; died June 11, aged 59, of heart failure due to coronary sclerosis and diabetes mellitus.

Crenshaw, John Lewis ⊕ Rochester, Minn.; born in Elizabeth, N. J., Jan. 2, 1882; University of Virginia Department of Medicine, Charlottesville, 1906; specialist certified by the American Board of Urology; entered the Mayo Clinic in May, 1910, and became a consultant in the section of urology in October, 1911; appointed assistant professor of urology in 1920, and associate professor in 1923, the Mayo Foundation, where since 1944 he was a member of the emeritus staff; member of the American Association of Genito-Urinary Surgeons, American Urological Association and past president of its North Central Branch, the Alumni Association of the Mayo Foundation, Sigma Xi, and Phi Rho Sigma; during World War I a captain in the medical corps of the U. S. Army and chief of the urologic service at Embarkation Hospital, Camp Stuart, Newport News, Va.; died in St. Mary's Hospital June 17, aged 71, of bronchopneumonia and coronary sclerosis.

Wagley, Perry Vernon ⊕ Pontiac, Mich.; born in Harrison, Ark., Oct. 7, 1891; University of Arkansas School of Medicine, Little Rock, 1915; specialist certified by the American Board of Psychiatry and Neurology; past president of the Michigan Society of Neurology and Psychiatry; member of the American Psychiatric Association; served during World Wars I and II; consulting psychiatrist at Memorial Hospital, Owosso, Pontiac General Hospital, and St. Joseph Mercy Hospital; superintendent of Pontiac State Hospital; died June 1, aged 61, of coronary disease.

AbPlanalp, Ira Sankey, Williston, N. D.; St. Louis University School of Medicine, 1906; died in High Point Lodge, Palmer Township, Minn., March 22, aged 74.

Armistead, Ernest King ⊕ El Paso, Texas; Maryland Medical College, Baltimore, 1911; served during World War I; served on the staffs of the Providence Memorial and Southwestern General hospitals; died May 27, aged 68, of cardiac arrest.

Beauchamp, Joseph Octave ⊕ Springfield, Mass.; School of Medicine and Surgery of Montreal, Canada, 1894; formerly mayor of Chicopee, where he was city physician and alderman; affiliated with the Mercy Hospital; died in Chicopee Falls May 30, aged 84, of acute myelogenous leukemia.

Bentley, William Edmond, Howell Township, N. J.; Michigan College of Medicine and Surgery, Detroit, 1894; died in the New Jersey State Hospital, Marlboro, May 8, aged 87, of myocarditis.

Biggs, John Moore ⊕ Memphis, Tenn.; College of Physicians and Surgeons, Memphis, 1910; affiliated with the Shelby County Hospital, where he died June 1, aged 78, of myocardial insufficiency and coronary occlusion.

Brinker, Marion Henry ⊕ Jefferson, Iowa; State University of Iowa College of Medicine, Iowa City, 1930; past president of the Greene County Medical Society; on the staff of the Greene County Hospital, where he died June 7, aged 60, of acute myocarditis.

Buehl, Robert Frederick ⊕ Clearwater, Fla.; Indiana University School of Medicine, Indianapolis, 1918; served during World War I and as a member of the Selective Service in Indianapolis during World War II; formerly affiliated with the Indian Service; at one time practiced in Indianapolis, where he was on the staffs of Methodist and St. Francis hospitals; died in the VA Hospital, Bay Pines, April 12, aged 60, of arteriosclerotic heart disease.

Bull, Homer Thomas Reginald ⊕ Geneseo, N. Y.; University of Toronto Faculty of Medicine, 1927; certified by the National Board of Medical Examiners; past president of the Livingston County Medical Society; served during World War II; affiliated with Wyoming County Community Hospital, Warsaw, and Highland Hospital, Rochester; died June 1, aged 51, of coronary occlusion.

⊕ Indicates Member of the American Medical Association.

Campbell, William Muse, St. Joseph, Mo.; Northwestern Medical College, St. Joseph, 1893; died June 13, aged 80, of arteriosclerosis.

Carpenter, Herbert Bancroft ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1889; died May 26, aged 86, of coronary thrombosis.

Case, James Dodds, Lincoln, Neb.; Lincoln Medical College, Eclectic, 1901; died in St. Elizabeth Hospital March 31, aged 78, of myocardial decompensation following an operation for carcinoma of the bowel.

Charbonneau, Noe Napoleon, Belmont, Mass.; University of Vermont College of Medicine, Burlington, 1898; died May 11, aged 77.

Clear, James Thomas ⊕ Cincinnati; Ohio-Miami Medical College of the University of Cincinnati, 1912; member of the International College of Surgeons; fellow of the American College of Surgeons; affiliated with St. Mary's Hospital, St. Francis Hospital, and the Good Samaritan Hospital, where he died June 7, aged 63.

Clothier, Elton Forrest, Elk River, Minn.; University of Minnesota Medical School, Minneapolis, 1929; died in Little Falls March 28, aged 50, of myocardial infarction and coronary thrombosis.

Colby, Buford Monroe ⊕ Hale, Mo.; Washington University School of Medicine, St. Louis, 1915; at one time assistant superintendent of the Kansas City General Hospital in Kansas City, Mo.; died in the Atwood Hospital, Carrollton, June 15, aged 64, of coronary thrombosis.

Collier, Edward James ⊕ Amsterdam, N. Y.; Albany (N. Y.) Medical College, 1896; an Associate Fellow of the American Medical Association; on the staffs of the Amsterdam City and St. Mary's hospitals; trustee, Amsterdam Savings Bank; died May 14, aged 81, of a heart attack.

Collins, William Wells ⊕ Sunnyside, Wash.; Northwestern University Medical School, Chicago, 1929; served during World War II; chief of staff, Valley Memorial Hospital; died May 28, aged 50, of cerebral vascular accident.

Cothern, William Ross, Waterloo, Iowa; Rush Medical College, Chicago, 1900; died April 11, aged 82, of bronchopneumonia.

Cremer, Peter Hubert, Hastings, Minn.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; died March 22, aged 74.

Crowson, Egbert, St. Joseph, Mo.; Central Medical College of St. Joseph, 1903; died June 8, aged 81.

Currie, William E. ⊕ Sterling, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1900; formerly mayor, and member of the school board; served on the staff of the Sterling Hospital; for many years served on the board of trustees and executive committee of Sterling College; died June 5, aged 81, of cerebral hemorrhage.

Edwards, James Gettys ⊕ Okmulgee, Okla.; University of Nashville (Tenn.) Medical Department, 1908; past president of the Okmulgee County Medical Society and vice-president of the Oklahoma State Medical Association; on the staff of the Okmulgee City Hospital; died May 23, aged 72, of coronary occlusion.

Ehlert, William, Pass Christian, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1900; died March 11, aged 76.

Ellis, Hubert, East Elmhurst, N. Y.; New York Homeopathic Medical College and Flower Hospital, New York, 1908; died in Middletown March 12, aged 73.

Evans, Ellis Austin ⊕ Conway Springs, Kan.; Marion-Sims-Beaumont Medical College, St. Louis, 1901; for many years resident surgeon for the Missouri Pacific Railroad; died May 30, aged 76.

Finley, William Albert ⊕ Cherokee, Ala. (licensed in Alabama in 1909); died in Decatur May 27, aged 78, of coronary thrombosis.

Foltz, Earl Dewitt ⊕ North Baltimore, Ohio; Western Reserve University School of Medicine, Cleveland, 1919; died April 10, aged 61, of coronary heart disease.

Galloway, Charles A., Henderson, Ky.; Louisville (Ky.) Medical College, 1883; died March 25, aged 94.

Glover, Lewis Pellman ⊕ Altoona, Pa.; Jefferson Medical College of Philadelphia, 1926; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; chairman of the department of ophthalmology at Altoona Hospital; died April 22, aged 52, of a brain tumor.

Gorman, John Joseph, Fall River, Mass.; College of Physicians and Surgeons, Baltimore, 1908; served as medical inspector of schools for the city board of health; roentgenologist, Fall River General and St. Anne's hospitals; died May 28, aged 67, of cerebral hemorrhage and bronchopneumonia.

Grant, Lee Otis J. ⊕ Grand Rapids, Mich.; Marquette University School of Medicine, Milwaukee, 1926; fellow of the American College of Surgeons; on the staff of St. Mary's Hospital; died May 29, aged 54, of carcinoma.

Hardt, Harry Godfrey ⊕ Chicago; Rush Medical College, Chicago, 1900; formerly on the faculty of his alma mater and the University of Illinois College of Medicine; affiliated with Evangelical Hospital; died in Elmhurst June 5, aged 76, of diabetes mellitus.

Herring, Arthur F. C., Lafayette, Ind.; College of Physicians and Surgeons of San Francisco, 1903; died in the William Ross Sanitarium March 6, aged 77, of pulmonary tuberculosis.

Hight, William Boyd ⊕ Des Moines, Iowa; Jefferson Medical College of Philadelphia, 1895; died March 31, aged 79, of acute congestive cardiac failure.

Hodges, Dolon Ernest ⊕ Billings, Mont.; University of Louisville (Ky.) School of Medicine, 1927; specialist certified by the American Board of Urology; fellow of the American College of Surgeons; president-elect of the Montana Medical Association; served overseas during World War II; on the staffs of the St. Vincent and Billings Deaconess hospitals; died recently, aged 50, of coronary sclerosis.

Hornick, Leo William ⊕ Johnstown, Pa.; Jefferson Medical College of Philadelphia, 1912; past president and secretary of the Cambria County Medical Society; fellow of the American College of Surgeons; in 1928 received the honorary degree of LL.D. from his alma mater; past president of the board of managers of the Municipal Hospital; on the staffs of the Conemaugh Valley Memorial Hospital and the Mercy Hospital, where he died May 8, aged 65, of cerebral hemorrhage.

Houston, William M., El Dorado, Ark. (licensed in Arkansas in 1903); died June 1, aged 77, of a heart attack.

Kent, Leslie Swigart ⊕ Eugene, Ore.; Lincoln Medical College, Eclectic, Lincoln, Neb., 1917; member of the American Academy of General Practice; past president of the Oregon State Medical Society and the Lane County Medical Society; vice-president of the American Medical Women's Association; died in the Sacred Heart General Hospital May 26, aged 71, of metastatic carcinoma of the liver and lungs and carcinoma of the right breast.

Kreutzmann, Henry Adolph Robert ⊕ San Francisco; University of Pennsylvania School of Medicine, Philadelphia, 1916; specialist certified by the American Board of Urology; member of the American Urological Association; fellow of the American College of Surgeons; served overseas during World War I; formerly on the staffs of the Chinese and Mount Zion hospitals; died April 28, aged 62, of myocardial infarction and coronary arteriosclerosis.

Lamb, Harry Hayes, Oil City, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1904; for many years state senator; affiliated with Oil City Hospital, where he died May 4, aged 76, of pyelonephritis.

Lawrence, Edgar L. ⊕ Roanoke, Va.; Medical College of Virginia, Richmond, 1900; died in the Shenandoah Hospital March 21, aged 83, following a fracture of the hip, received in a fall.

Lawson, John Alexander ⊕ Rocky Ford, Colo.; Jefferson Medical College of Philadelphia, 1895; affiliated with Mennonite Hospital in La Junta, where he died May 7, aged 84, of uremia and congestive heart failure.

Lease, Nimrod James ⊕ Crawfordsville, Iowa; State University of Iowa College of Medicine, Iowa City, 1892; died May 23, aged 83, of heart disease.

Lieberthal, David ⊕ Chicago; Medizinische Fakultät der Universität, Wien, Austria, 1894; an Associate Fellow of the American Medical Association; specialist certified by the American Board of Dermatology and Syphilology; member of the American Urological Association; affiliated with the Michael Reese and Illinois Masonic hospitals; died in the Columbus Hospital June 10, aged 86, of cardiovascular accident due to arteriosclerosis.

Lockwood, Charles Edwin ⊕ Montrose, Colo.; Tufts College Medical School, Boston, 1898; past president of the Montrose County Medical Society; formerly vice-president of the Colorado State Medical Society; formerly mayor of Olathe; served during World War I; for many years county physician; on the staff of St. Luke's Hospital; died in Emory John Brady Hospital, Colorado Springs, April 16, aged 81, of cerebral thrombosis and bronchopneumonia.

McClellan, William Thomas ⊕ Stollings, W. Va.; Kentucky University Medical Department, Louisville, 1905; died in Logan May 15, aged 80, of cerebral hemorrhage.

McCullough, John Henry, Newberry, S. C.; Southern Medical College, Atlanta, 1891; served as county physician for many years; on the staff of the Newberry County Memorial Hospital, where he died June 28, aged 83, of cerebral hemorrhage.

Marr, Raymond ⊕ Cincinnati; University of Cincinnati College of Medicine, 1939; member of the Industrial Medical Association; assistant medical director of the Cincinnati Milling Machine Company; died in the Holmes Hospital May 12, aged 48.

Martin, Ross Christman ⊕ San Bernardino, Calif.; University of Louisville (Ky.) Medical Department, 1912; served on the staff of St. Bernardine's Hospital; died in the Redlands Community Hospital in Redlands April 18, aged 64, of nephritis.

Maurer, Franklin ⊕ Springfield, Ill.; Northwestern University Medical School, Chicago, 1908; served during World War I; died in St. John's Hospital May 24, aged 68, of coronary thrombosis.

Moore, Baxter Springs, Fayetteville, N. C.; University of Virginia Department of Medicine, Charlottesville, 1902; formerly clinical professor of surgery at the North Carolina Medical College, Charlotte; served during World War I; associated with Veterans Administration in Charlotte and Fayetteville; died May 10, aged 74.

Morgan, Browne ⊕ Bloomfield, N. J.; Columbia University College of Physicians and Surgeons, New York, 1898; served during World War I; affiliated with Newark (N. J.) Eye and Ear Infirmary; died in the Community Hospital, Montclair, May 27, aged 79, of carcinoma of the lung.

Peterka, Edward, Cleveland; Western Reserve University Medical Department, Cleveland, 1905; fellow of the American College of Surgeons; affiliated with St. Alexis Hospital; died May 23, aged 73.

Peterson, James Rumbaugh ⊕ Seattle; Western Pennsylvania Medical College, Pittsburgh, 1911; served during World War I; died May 19, aged 71.

Prentiss, Marvin B., Clermont, Fla.; Michigan College of Medicine and Surgery, Detroit, 1896; served for one term in the state legislature of Oklahoma; died in Nowata, Okla., May 3, aged 83, of arteriosclerosis.

Prichard, Marvin Compton ⊕ Long Beach, Calif.; University of Louisville School of Medicine, 1933; specialist certified by the American Board of Radiology; member of the American College of Radiology; formerly instructor in radiology at the University of Chicago Clinics; on the staff of the Seaside Memorial Hospital; died May 5, aged 43, of coronary heart disease.

Purcell, James Bernard ⊕ Wilkes-Barre, Pa.; Jefferson Medical College of Philadelphia, 1926; member of the American Urological Association; fellow of the American College of Surgeons; city physician; assistant surgeon for the D. & H. Railroad; affiliated with Mercy Hospital, where he died May 13, aged 55, of perforation of the abdominal aorta.

Reim, Hugo ⊕ St. Louis; Barnes Medical College, St. Louis, 1904; assistant professor of clinical ophthalmology at St. Louis University School of Medicine; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; affiliated with Firmin Desloge Hospital and the Shriners Hospital for Crippled Children; died in the Deaconess Hospital April 15, aged 70, of carcinoma.

Rigterink, George H. ⊕ Hamilton, Mich.; Detroit College of Medicine, 1900; past president of the Allegan County Medical Society; died in the Borgess Hospital, Kalamazoo, April 19, aged 80.

Roche, Arthur Felix ⊕ Hartford, Conn.; Georgetown University School of Medicine, Washington, D. C., 1917; member of the American Academy of Allergy; served during World War I; affiliated with St. Francis and McCook hospitals; died April 11, aged 59, of coronary thrombosis.

Rodgers, Lewis Aretus ⊕ Oskaloosa, Iowa; State University of Iowa College of Medicine, Iowa City, 1889; past president of the Mahaska County Medical Society; died April 20, aged 89, of cerebral hemorrhage.

Salinger, Simon F., Chicago; Western Pennsylvania Medical College, Pittsburgh, 1897; died June 4, aged 92, of coronary heart disease and arteriosclerosis.

Sawyer, Alpha Reuben ⊕ Lexington, Mass.; McGill University Faculty of Medicine, Montreal, Canada, 1905; member of the American Urological Association; died May 13, aged 71.

Schaefer, John F. ⊕ New York City; Schlesische Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau, Germany, 1927; formerly affiliated with the Indian Service; died in Brentwood, N. Y., April 15, aged 51.

Schamberg, Morris I., New York City; Medico-Chirurgical College of Philadelphia, 1898; also a graduate in dentistry; formerly professor of oral surgery at the New York Post-Graduate Medical School, and his alma mater; veteran of the Spanish-American War; served on the staff of the Bronx Hospital; died May 20, aged 78.

Selo, Herbert Louis ⊕ Findlay, Ohio; Universität Köln (Cologne) Medizinische Fakultät, Köln, Prussia, Germany, 1923; member of the American Academy of General Practice; on the staff of the Blanchard Valley Hospital; died April 9, aged 54, of coronary thrombosis.

Simmons, John A. ⊕ Arcadia, Fla.; University of Arkansas School of Medicine, Little Rock, 1905; died April 25, aged 75, of coronary thrombosis and coronary sclerosis.

Smith, Glenn Jones, Amite, La.; American Medical College, St. Louis, 1906; member of the American Psychiatric Association; served during World War I; for many years served on the state board of education; for many years superintendent of the East Louisiana State Hospital at Jackson; died May 24, aged 71, of cerebral hemorrhage.

Smith, Victor Conway ⊕ New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1899; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; formerly on the faculty of his alma mater; member of the staff of the Eye, Ear, Nose and Throat Hospital, Illinois Central Railroad Hospital, and the Baptist Hospital, where he died May 19, aged 78, of acute leukemia.

Smith, Warren Clifton, Benton, Miss.; Memphis (Tenn.) Hospital Medical College, 1906; served on the staffs of the Kings Daughters Hospital and Yazoo Clinic and Hospital in Yazoo City; died May 1, aged 68, of arteriosclerosis.

Smith, Will Remeses, Huntington Park, Calif.; Marion-Sims College of Medicine, St. Louis, 1895; died in VA Center, Los Angeles, March 25, aged 85, of terminal bronchopneumonia and adenocarcinoma of the prostate.

Staton, Torrence Ripley ⊕ Atlanta, Ga.; Emory University School of Medicine, Atlanta, 1930; served during World War II; died near Forsythe July 5, aged 46, of injuries received in a private plane accident.

Stimson, George William ⊕ Warren, Ohio; University of Pennsylvania School of Medicine, Philadelphia, 1903; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; on the staffs of the Warren City Hospital and Trumbull Memorial Hospital; died April 20, aged 73.

Stocker, Harry ⊕ Detroit; Northwestern University Medical School, Chicago, 1923; on the staffs of the Sinai and East Side General hospitals; died May 5, aged 56, of coronary disease.

Sum, Othmar John, Barnhart, Mo.; St. Louis University School of Medicine, 1921; served during World War I; died May 1, aged 61, of heart disease.

Swift, Samuel ⊕ Bronxville, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1913; fellow of the American College of Surgeons; died in the Lawrence Hospital May 30, aged 66, of acute pulmonary edema and hypertension.

Tenczar, John Francis ⊕ Chicago; University of Illinois College of Medicine, Chicago, 1927; on the staff of St. Mary of Nazareth Hospital, where he died May 22, aged 53, of carcinomatosis.

Thieme, Harry Lankford ⊕ St. Louis; St. Louis University School of Medicine, 1924; member of the Industrial Medical Association; affiliated with Barnes, Jewish, Missouri Baptist, and Alexian Brothers hospitals; died May 29, aged 51, of injuries received in an automobile accident.

Thornton, Francis Eugene ⊕ Chicago; Bennett Medical College, Chicago, 1888; an Associate Fellow of the American Medical Association; formerly on the faculty of his alma mater; affiliated with the Norwegian American Hospital and for many years on the staff of the Cook County Hospital; died May 14, aged 88, of carcinoma of the bladder.

Townsend, Wilmot Charles ⊕ Hartford, Conn.; Harvard Medical School, Boston, 1925; certified by the National Board of Medical Examiners; fellow of the American College of Physicians; served during World War I; received the Bronze Star for his services in the Mediterranean theatre during World War II; consultant, New Britain (Conn.) General Hospital and the Institute for Living; on the staff of the Hartford Hospital, where he died May 10, aged 55, of coronary disease.

Van Studdiford, Martin Thomas ⊕ New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1918; professor of clinical dermatology at his alma mater; specialist certified by the American Board of Dermatology and Syphilology; member of the American Dermatological Association and the American Academy of Dermatology and Syphilology; affiliated with National Leprosarium in Carville, La., U. S. Marine Hospital, Hotel Dieu, Sisters' Hospital, and Charity Hospital; died May 15, aged 62, of leukemia.

Veneruso, Leonard Charles ⊕ Trumbull, Conn.; New York Medical College, Flower and Fifth Avenue Hospitals, New York, 1942; certified by the National Board of Medical Examiners; served during World War II; affiliated with Bridgeport (Conn.) Hospital, where he died May 1, aged 35, of acute coronary occlusion.

Wadsworth, John V. ⊕ Buffalo; University of Buffalo School of Medicine, 1921; affiliated with Edward J. Meyer Memorial Hospital; on the staffs of the Buffalo General Hospital and the Millard Fillmore Hospital, where he died May 6, aged 58, of acute myocardial infarction.

Wahl, Spencer Alwyn ⊕ Cleveland; Western Reserve University School of Medicine, Cleveland, 1920; died in Bethesda, Md., May 21, aged 57, of cerebral hemorrhage and hypertension.

Wallin, Maurice Benjamin, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; died in Rochester, Minn., May 22, aged 65, of carcinoma of the lung.

Walton, Josiah Harry ⊕ Clayton, Mo.; Barnes Medical College, St. Louis, 1902; died May 30, aged 79, of carcinoma.

Wenstrand, David E. W. ⊕ Tryon, N. C.; Northwestern University Medical School, Chicago, 1900; member of the State Medical Society of Wisconsin; past president, vice-president, and secretary of the Milwaukee Academy of Medicine; an Associate Fellow of the American Medical Association; past president and vice-president of the Association of Life Insurance Medical Directors; formerly director of the Northwestern Mutual Life Insurance Company; died June 4, aged 77, of coronary occlusion.

White, Wendell Jones ⊕ Vinita, Okla.; University of Arkansas School of Medicine, Little Rock, 1948; member of the Arkansas Medical Society; served during World War II; affiliated with Eastern State Hospital; died May 10, aged 30.

Widing, Herbert Andrew ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1927; affiliated with Jefferson and Presbyterian hospitals; died May 30, aged 52.

Wilder, Don Eugene ⊕ Booneville, Ky.; University of Louisville School of Medicine, 1929; served as health officer of Carter, Owsley, Lawrence, and Breathitt counties; formerly secretary and treasurer of the Carter County Medical Society; died in St. Joseph Hospital, Lexington, April 5, aged 48, of a fractured skull sustained in a fall.

Williams, John Watkins, Williamston, N. C.; University of Maryland School of Medicine, Baltimore, 1906; health officer of Martin County; formerly health officer of Asheville; served as director of Quachita Parish (La.) Health Unit; past president of the North Carolina Public Health Association; died in Martin General Hospital May 19, aged 68, of uremia and auricular fibrillation.

Worthington, Ernest Jerome ⊕ Chicago; Chicago College of Medicine and Surgery, 1917; past president of the West Side Branch of the Chicago Medical Society; past president of the West Side Hospital; served on the staff of Bethany Hospital; died May 23, aged 62.

Wright, Harper ⊕ Oklahoma City, Okla.; Atlanta College of Physicians and Surgeons, 1913; past president of the Oklahoma State Board of Medical Examiners; on the staff of the Wesley Hospital; died in Cuthbert, Ga., May 30, aged 65, of coronary thrombosis.

DIED WHILE IN MILITARY SERVICE

Goodwin, Robert Franklin, Bremerton, Wash.; University of Tennessee College of Medicine, Memphis, 1949; interned at the Wichita (Kan.) Hospital; lieutenant (jg), U. S. Naval Reserve; served at the Naval Hospital in Bremerton at the time of his death April 1, aged 34, of injuries received in an automobile accident.

Richards, Arthur Charles Jr. ⊕ Ambler, Pa.; born in Philadelphia Aug. 2, 1914; Jefferson Medical College of Philadelphia, 1943; interned at the Williamsport (Pa.) Hospital; served a residency in obstetrics and gynecology at the Grace-New Haven Community Hospital in New Haven, Conn., and the Pennsylvania Hospital in Philadelphia; captain, medical corps, U. S. Army Reserve, serving in Korea since January as a medical adviser to the 6th ROK Division; died May 14, aged 38, of injuries received in a helicopter crash near Hwanchon Reservoir, Korea.

GOVERNMENT SERVICES

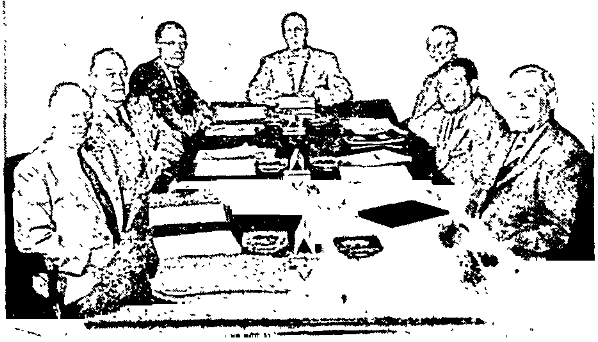
ARMY

Personal.—Lieut. Col. Charles D. Shields (MC) formerly commissioner of health for Buffalo, N. Y., has reported to the Army Surgeon General's office for duty as chief physical medicine consultant in the Professional Division, effective July 1. Colonel Shields replaces Col. Emmett M. Smith (MC), who has been assigned to Europe.

Colonel Shields' most recent assignment was as chief of the Physical Medicine Service at Brooke Army Hospital, Fort Sam Houston, Texas. During World War II, he served as commanding officer of the 87th Station and 141st General hospitals and later as public health officer with the Allied Control Commission in Italy. From 1944 to 1946 he served as health officer for Bavaria. Colonel Shields left the Army in 1946 to accept a position with the city of Buffalo as commissioner of health. He joined the Regular Army in 1947.

DEPARTMENT OF DEFENSE

Medical Advisory Council.—The Armed Forces Medical Policy Council was dissolved on April 1, 1953. At the same time, the Secretary of Defense appointed a Civilian Health and Medical Advisory Council, consisting of six members of the health and medical professions of the United States.



Medical advisory council (left to right): Dr. William S. Middleton; Dr. Anthony J. J. Rourke; Dr. Dwight L. Wilbur; Dr. Melvin A. Casberg, assistant to the Secretary of Defense (Health and Medical); Dr. Alfred R. Shands Jr.; Dr. Isidor S. Ravdin; and James P. Hollers, D.D.S.

NAVY

Personal.—Capt. Ashton Graybiel (MC) has been chosen president-elect of the American College of Cardiology. Captain Graybiel, now Coordinator of Medical Research, Naval School of Aviation Medicine, Pensacola, Fla., was awarded the Legion of Merit in 1952 for outstanding service as director of research at the School of Aviation Medicine. The Aero-Medical Association awarded its Lyster award for 1950 to Captain Graybiel for outstanding scientific contributions to aviation medicine. The citation accompanying the award recognized his co-authorship of the book "Electrocardiography in Practice."

AIR FORCE

Personal.—Dr. John A. Schilling, assistant professor of surgery at the University of Rochester School of Medicine, Rochester, N. Y., has been appointed head of the department of surgery at the U. S. Air Force School of Aviation Medicine, Randolph Field, Texas.

PUBLIC HEALTH SERVICE

Radioactive Cortisone Available.—A limited supply of radioactive cortisone and hydrocortisone is now available without charge to qualified investigators through funds supplied by the Public Health Service's National Institute of Arthritis and Metabolic Diseases. Both are labeled at position 4 with C^{14}; cortisone has a specific activity of 0.49 mc./m. mole; and hydrocortisone a specific activity of 1.47 mc./m. mole. Requests, in the form of a letter concisely describing the proposed research, should be sent to the Division of Research Grants, National Institutes of Health, Bethesda 14, Md. Transfer and use of these materials are subject to current Atomic Energy Commission regulations.

Personal.—Dr. Clifton K. Himmelsbach has been appointed assistant chief, division of hospitals, U. S. Public Health Service, effective July 20. Dr. Himmelsbach was formerly medical officer in charge of the P. H. S. Outpatient Clinic, Washington, D. C. He succeeds Dr. Myron D. Miller, who has been appointed medical officer in charge of the P. H. S. Hospital, Seattle.——Dr. James R. Shaw has been appointed chief medical officer of the Bureau of Indian Affairs, U. S. Department of the Interior, effective July 13. Dr. Shaw was formerly chief of the division of hospitals, U. S. Public Health Service. He succeeds Dr. Fred Foard, who has retired from the Public Health Service.

VETERANS ADMINISTRATION

Personal.—Dr. Benedict Nagler, associate professor of neuropsychiatry at the Medical College of Virginia and chief of the neuropsychiatric service at the VA Hospital in Richmond, Va., will become chief of the neurology section of the psychiatry and neurology division, department of medicine and surgery, effective July 19, 1953. Dr. Nagler will succeed Dr. Tiffany Lawyer Jr., who is leaving the Veterans Administration to accept a teaching assignment in Georgetown University Medical School, Washington, D. C. In his new position, Dr. Nagler will coordinate policies in the treatment of more than 10,000 veteran patients suffering from neurological diseases in VA Hospitals and Outpatient Clinics. He will serve under Dr. Harvey J. Tompkins, chief of the psychiatry and neurology division.——Dr. Peter A. Peffer, manager of the VA Hospital at Perry Point, Md., is to be manager of the new 958 bed neuropsychiatric VA Hospital nearing completion at Brockton, Mass. Dr. Earl P. Brannon, chief of professional services at the Perry Point hospital, has been appointed manager at that installation. Dr. Joseph L. Campbell, former manager of the VA Hospital at Butler, Pa., becomes manager of the VA Hospital in Dwight, Ill. He succeeds Dr. M. H. Fineberg, recently transferred as manager of the VA Hospital in Wilkes-Barre, Pa. Dr. Fineberg was certified by the American Board of Internal Medicine in 1939, after 12 years of private practice in Cleveland. He served in the Army Medical Corps from July, 1941, until June, 1946.——Eugene K. Ricker, manager of the VA Hospital in Fort Bayard, N. Mex., becomes manager of the VA Domiciliary at Camp White, Ore. He succeeds Paul A. Hatton, transferred to the VA Center in Hot Springs, S. D.——Dr. Louis B. Newman, chief, Physical Medicine and Rehabilitation Service, VA Hospital, Hines, Ill., addressed the staff of the Memorial Hospital, St. Joseph, Mich., May 26, on "The Value of Physical Medicine and Rehabilitation."——Dr. John G. Hood of Richmond, Va., has been appointed manager of the VA Hospital in the Bronx, New York City, to succeed Dr. Ralph G. Devoe, who is retiring.

FOREIGN LETTERS

BRAZIL

Hematological Aspects of Lupus Erythematosus Disseminatus.—Disseminated lupus erythematosus causes a true and extensive reticuloendotheliosis, involving the reticulohistiocytes and the fundamental substance of the collagen as well. It produces a real "mesenchymatosis," explaining the serious alterations of the hematopoietic organs and the various deviations in the blood picture. Dr. Michel Jamba, of the department of clinical medicine, São Paulo State University, in collaboration with the staff of the central laboratory of the Hospital das Clinicas, published a report of repeated examinations in 15 cases of disseminated lupus erythematosus (*Revista Paulista de Medicina* 42:171, 1953). The hematological aspects of the reticuloendotheliosis were analyzed to emphasize some points that may help the practitioner in making an early diagnosis of the disease. The authors stress the importance of noncutaneous forms, pointing out that most of them (11 out of 15, or 73.3%) have a chronic course that permits the distinction of four principal forms, according to the presence or absence of cutaneous lesions. The acute visceral form of the disease may occur in some cases without skin lesions, this being the reason why the disease is called "disseminated lupus" or "lupous collagenosis."

In this series, only 2 of 15 patients were males and 2 were of older age (58 and 61 years). Anemia occurred in all patients at some time during the natural course of the disease. Leukopenia was found in only two patients, and leukocytosis was not uncommon in connection with intercurrent complications or as a result of the treatment. Platelet reduction occurred in four patients but without simultaneous leukopenia. A male patient had thrombocytopenic purpura, with petechiae, purpuric maculas, and intestinal hemorrhage. In patients with slight hypertension, renal lesions, and hepatic and splenic enlargement, the positivity of the lupus erythematosus cell (Hargraves) test led to the exact clinical diagnosis. The bone marrow study in seven patients permitted the demonstration of some inhibition of the neutrophilic granulocyte maturation, and a relative hypoplasia of the erythroblastic cells, and in all patients an increase of the plasmocytes.

The lupus erythematosus cell test is, in the authors' opinion, pathognomonic. When performed in 97 cases, it was not positive in 28 other pathological conditions. In order that the test may be performed without error, it is necessary to use some "reactive" leukocytes, as some white blood cells are "hyporeactive" or even "nonreactive" to the gamma globulin responsible for the lupus erythematosus cell phenomenon. As the clinical picture of disseminated lupus erythematosus is very complex and frequently ill-defined, the authors believe that the lupus erythematosus cell test is indispensable when, without clear explanation, there are symptoms and signs like elevation of temperature, accelerated blood sedimentation rate, anemia, hyperglobulinemia, and plasmocytic infiltration of the bone marrow, idiopathic thrombocytopenia with sudden onset late in life, liver and spleen enlargement without hemopathic disorders associated with elevation of temperature, pulmonary infiltrations associated with temperature elevations, and recurrent pleural effusions. In the performance of the test, they recommend the use of positive plasma as a control of the reactivity of the "leukocytic cream" that is to be mixed with the plasma being tested.

Humoral Immunity of Dogs Infected with Trypanosoma Cruzi.—In the last two years, Drs. Julio Muniz and Rostan Soares, at the Institute of Malariology, National Department of Health, have been studying the various aspects of immunity in dogs experimentally infected with Trypanosoma (Schizotrypanum) cruzi. They have prepared a report for the *Revista Brasileira de Malariologia*, with the principal results of their work up to the present time. They performed, with the techniques already described in previous papers, the following tests: complement fixation test, precipitin test, agglutination reaction, and hemolytic and agglutination powers for sheep's blood cells.

The conclusion of the authors is that the establishment of immunity of dogs against T. cruzi follows a general course similar to that in man, though some differences may be recognized. Thus, the agglutinin content was found to be lower than in man, specially in the patent stage of the disease. Contrarily, the precipitin content showed itself to be markedly higher and more persistent, particularly in the postpatent stage. A close relationship between the agglutination and the precipitation powers, such as occurs in man, was not observed in the authors' experiments. Another difference disclosed by the experiments was the absence of antibodies of the heterophilic type, which are found in high concentration in human infections, especially during the patent stage. A justifiable explanation of this fact, in the opinion of the authors, is the presence of Forssman's antigen in the dog.

Pulmonary Resections.—Dr. Jesse Teixeira, head surgeon of the Rio de Janeiro Santa Maria Tuberculosis Hospital, published in *Revista Brasileira de Cirurgia* (25:551, 1952) a comprehensive report on 38 consecutive cases of pulmonary resections with some valuable information for the practitioner. After a review of the fundamental phases of the historic development of the methods for this kind of operation and a description of techniques, the author analyzes the indication for pulmonary resection, especially in connection with lung tumors, chronic bronchopulmonary suppurations, and pulmonary tuberculosis. He illustrates each of these points with the experience of his cases, a summary of which may be presented as follows. In 7 cases the operation was done for pulmonary tumors, in 17 for bronchopulmonary suppurations, and in 14 for pulmonary tuberculosis. Total pneumonectomies were done in 24 cases (on the right in 10 and the left in 14). Lobectomies were done in 14 cases, with one lobe being removed in 13 cases and 2 lobes in 1. Anesthesia with spontaneous breathing was used in the first series of 15 and anesthesia with controlled breathing in the second series of 24. There were nine deaths immediately postoperatively in the first series and none in the second. The causes of death in the first series were irreversible shock in three cases, cerebral and coronary gaseous embolism in 1 (established at autopsy), cardiac arrest during the operation in two cases, and uncontrollable hemorrhage during the operation in one case. Two patients died suddenly with change of posture at the end of the procedure. There were two deaths that did not occur immediately after the operation in the first series (one due to tuberculosis after 7 days and one due to cancer after 18 months), and three in the second series (one from tuberculosis after 12 days, one from cancer after 3 months, and one from tuberculosis after 7 months). The author stresses the importance of modern techniques, which decrease the immediate postoperative mortality, and emphasizes the superiority of anesthesia with controlled respiratory methods in thoracic surgery.

Intestinal Schistosomiasis in São Paulo.—Drs. J. Alves Meira and José M. Ferreira, professor and assistant professor of tropical medicine, São Paulo State University, reported three more cases of intestinal schistosomiasis in the interior of the state of São Paulo. In one case in which the patient lived at Ourinhos the disease was considered truly autochtonous, since infected snails were found by Dr. Luis Rey in a small stream of the vicinity. The Ourinhos focus was the first to be discovered in the uplands of São Paulo. The other two cases were discovered at Palmital and Ipauçú, where, in previous surveys, Dr. Samuel Pessoa and Dr. J. O. Coutinho have found uninfected planorbid snails of the genus Astralorbis. Considering the present great

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

migration of persons from highly infected tropical districts of Brazil, and the possibility of the presence of snails of susceptible species in the São Paulo uplands, the authors foresee the existence of new foci of the disease in the interior of São Paulo.

DENMARK

Late Effects of Gastric Resection.—Follow-up studies of patients whose stomachs have been resected for gastric or duodenal ulcers have become more important than ever because of the growing competition between the operative and conservative treatment of such ulcers. The keenness of this competition is emphasized by the growing efficacy of both measures. Improvements of operative technique and of both preoperative and postoperative therapy have greatly reduced the operation risks, but at the same time advances in conservative and medicinal treatment have added greatly to the attractiveness of this alternative. To ascertain what happens to resected cases after a considerable observation period physicians on the staff of the Copenhagen County Hospital in Gentofte have undertaken a follow-up study of the 99 patients (82 men and 17 women) who underwent gastric resection for ulcers in the period 1939-1949. These physicians (Drs. Bent Bjerre, John Engberg, and Ulrik Feldthusen) point out in an article in *Ugeskrift for laeger* for Jan. 8 that the resection was the Billroth's operation in 94 cases, in most of which an entero-anastomosis was established. An attempt was made to resect between two-thirds and three-quarters of the stomach, the indications for operation being very strict, particularly during the first few years of the period under review, with marked invalidism and inability to work in most cases. More than two-thirds of the patients were over the age of 40, with a history of ulcers for 10 years or more.

The follow-up study showed that 7 of these 99 patients had died in connection with the operation, and another 7 had died of various conditions some years after it. Among 81 surviving patients, 18 were completely symptom-free from one and one-half to several years after the operation. Ten patients were still more or less invalids and unfit for work because the operation results were bad. There remained a large intermediate group of 53 patients who, after the same observation period, were subjectively well but objectively rather unsatisfactory, and the quality and quantity of their food had to be regulated with care. Among the 81 patients there were only 3 who frankly declared that they regretted having undergone this operation. On the other hand, most of them spontaneously expressed their gratitude for it. In nearly every case caloric needs could be satisfactorily met by the normal number of meals, and it was exceptional for working capacity not to be improved. In the present publication no reference is made to any original control investigation depending on the follow-up study of cases given conservative treatment only.

MEXICO

Activities of the Institute of Public Health and Tropical Diseases.—The activities and work of the Institute of Public Health and Tropical Diseases, Mexico City, have not always been widely known because they are usually very specialized. On the occasion of the 14th anniversary of the institution its secretary, Dr. Manuel González Rivera, issued an extensive report that reviews the most important investigations and research done since 1939. Following are some of the points of that report.

Laboratory and outside research on whooping cough has been carried out for several years. For four years the value of pertussis vaccine in active immunization has been investigated, as well as determination of the effect of agglutinations of Hemophilus pertussis in blood of vaccinated and nonvaccinated adults. Other investigations included a study on the passage of pertussis antibodies through the placenta and observations on passive immunization with serum of pertussis-immunized subjects.

In cooperation with the International Salmonella Center of Copenhagen, the Salmonella Center of Mexico was organized in 1939. It is dedicated to the study of the bacteriological, medical, and sanitary aspects of salmonellosis and to the study of the disease in humans, particularly children. Salmonellas have been found (in Mexico) to be the cause of many so-called diarrheas, cases of enteritis, and intestinal fevers.

Specific, somatic, and K serums have been prepared that correspond to the 25 groups of the Kauffann-Knyschildt-Vahlne (KKV) antigenic diagnostic diagram. At the same time studies on the antigenic structure of micro-organisms of the coliform group (Escherichia, Aerobacter, Klebsiella, and paracolon) were begun. The "O" group has been determined in 508 cultures (according to the KKV diagram) of coliforms isolated in man, rats, and butter. It has been found that cultures from the intestine of the rat belong to a different serologic group than those of human origin.

Three new species of Salmonella have been described: S. mexicana, S. pensacola (Analmac variety), and S. liceagai (in memory of Dr. Eduardo Liceaga). Several varieties of coliform bacilli that possess Salmonella antigens have also been described. Lately the rat salmonellas of Mexico have been studied. In 1951 the Salmonella and virus laboratory of the institute was designated regional center for the study and classification of salmonellas in all of Central America. The effect of alum on S. typhi and S. paratyphi A and B, was studied to determine the possibility of active immunization against typhoid and paratyphoid with a single dose of paratyphoid vaccine precipitated with alum and also the possibility of producing active immunization in man against the most frequent varieties of pathogenic Salmonella.

The bactericidal and bacteriostatic effect of a new chemical compound, aluminum para-aminobenzene sulfonate (Sulfalumin) on S. typhi, Shigella, Escherichia coli, Staphylococcus aureus, Streptococcus haemolyticus, Brucella abortus, and Br. melitensis was studied, as well as the synergistic action of this drug with penicillin on S. typhi. Other research in the field of brucellosis has been the investigation of agglutination tests in brucellosis patients, and the antigenic and allergic aspects of brucellosis; the differentiation of the type of Brucella by the complement fixation test; culture of Brucella organisms; and forms of treatment of the disease.

Vaccination of white rats against brucellosis was tried. Other work in this field refers to hydrogen sulfide metabolism in Br. melitensis, the role of the spleen in experimental brucellosis, transformation of smooth into rough cultures, determination of nitrogen in different samples of anti-Brucella vaccine, and histopathological studies of human and animal cases of brucellosis.

Research on classic and murine typhus in the laboratory, in clinical cases, and in the field has been related to different aspects of rickettsiosis, preparation of vaccines, immunology and allergy of the disease, agglutination, and complement fixation tests. The distribution of typhus in Mexico has been studied by means of the complement fixation test with murine and classic antigens. The complement fixation test was done with the two typhus rickettsias and with agglutinations of Proteus OX19 in more than 2,500 rats in Mexico City. A low incidence of infected rats was found.

The antigenic fraction (belonging to rickettsias) was investigated in 1,200 cultures of coliform bacilli using the serum of typhus patients. Experiments on fatal infections with Rickettsia prowazekii moorseri in a race of white mice CFCW were done in comparison to the resistance of ordinary white mice. A race was found that is highly susceptible to experimental exanthematous typhus.

A new serologic test for the diagnosis of typhus was described based on the precipitation of antityphus serums by the urine of typhus patients. A modified Weil-Felix reaction and a fast slide method were also described. Experiments on treatment of typhus with serum of convalescent rabbits and other chemical products have been carried out. R. rickettsii was isolated for the first time in Mexico in Choix in the state of Sinaloa in 1943. Later it was found in other parts of Sinaloa, at Sonora and La Laguna.

Continuing the work in recurrent fever, two new outbreaks in Saltillo, Coahuila, and Espíritu Santo, Zacatecas, were localized, where numerous specimens of Ornithodoros turicata were collected and proved to be highly infected with Spirochaetae. In the state of Coahuila a new species of recurrent fever Spirochaeta was found, as were two new species of Ornithodoros, carriers of this disease.

The following work has been done on pinta: morphological study of the Treponema carateum, first under the ordinary microscope and later with the electronic microscope, attempts at culture and inoculation of the Treponema, and a comparative study of the Wassermann, Kahn, and Proske tests in pinta patients. Promising results have been obtained in studies of the therapeutic effect of mapharsen, penicillin, streptomycin, and aureomycin on pinta.

The incidence of intestinal protozoa was studied for the first time in Mexico in relation to infant diarrhea. The first case of infection by Isospora hominis in Mexico was reported, and the epidemiology of Balantidium coli infections was studied.

The characteristics of varieties of Plasmodium vivax from several parts of the country have been studied, verifying the Plasmodium preference for the reticulocytes in the blood as well as in the bone marrow. When P. gallinaceum was used, the possibility of oral infection was confirmed. For the first time in Mexico a methodical study of the Protozoa parasites of wild birds was carried out. The P. juxtanucleare, a chicken parasite in the state of Chiapas, was discovered. The value of chloroguanide (Paludrine) in the treatment of malaria has been assayed. Work on artificial fever was initiated, and study of experimental infection with Spirochaeta turicatae and on malariotherapy for neurosyphilis have been carried out using Mexican species of P. vivax. The institute provides the parasites for the treatment of neurosyphilis to many medical institutions and even to private physicians. An easy method of control of the malaria infection was established.

The geographic distribution of the Culicidae family has been widely studied, especially that of the Anapheles, correcting many errors in the literature in relation to Mexico. A new carrier of the P. gallinaceum was discovered, the Culex quinquefasciatus. The number of Anopheles species described in Mexico has increased considerably, including some described for the first time. On the border between Mexico and Guatemala the following species were found: albimanus, apicicimacula, darlingi, gabaldoni, pseudopunctipennis, punctimacula, strodei, vestitipennis, and Chagasia banthanus.

Epidemiological data have been obtained, and some work has been done on leishmaniasis americana in Mexico. The biology and types of cultures have been studied, and a comparative cytological and immunologic study between the Mexican and South American species is being carried out.

Explorations continue in order to detect new cases of Chagas disease; Trypanosoma lewisi in rats has been investigated; Schizotripanum cruzi was found in one rat in Mexico City; two species of triatomas were found to be infested with Trypanosoma cruzi; and experimental infection of triatomas with large and small numbers of trypanosomas has been tried. Experiments on the transmission of Trypanosoma cruzi in several species of Ornithodoros have also been performed. The existence of Triatoma protacta woodi and Triatoma gerstaeckeri in Mexico was discovered; attempts were made at crossmatching Triatoma hegneri with Triatoma dimidiata and the collection of triatomides continues in different parts of the country in order to determine what species exist in Mexico and their geographic distribution. Similar studies are in process in relation to Ornithodorus species, specially Ornithodorus furcosus. A new species of Ornithodorus was discovered and was named O. drigesi.

The existence of microfilaria ozzardi in Mexico was proved, and an outbreak in the state of Campeche is being studied. Hetrazan (1-diethylcarbamyl-4-methyl piperazine dihydrogen citrate) was tried in patients with this filariasis. It seems to have no effect on such filaria.

The effect of Hetrazan in onchocercosis was studied experimentally. In a group of patients observed for over a year, it was found that the drug improved noticeably the ocular disturbances and reduced the number of microfilarias.

Thousands of Simulium flies have been identified. Sixty new species have been found, with three genera and eight subgenera. Five of the new species were found in the onchocercosic zone of Chiapas and Oaxaca. Many species of larvae were studied and codified. The material already known was also reviewed and classified. The transmission of Onchocerca volvulus by the Simulium mangabeirai was studied, and a sample of Simulium exiguun was found to be infected.

Many classifications of Simulium flies have been made (by the institute) not only in Mexico but also in the British Museum, the National Health Institute of Caracas, Venezuela, the University of California, the School of Tropical Medicine of San Juan, Puerto Rico, and other institutions. Also in this matters the institute receives consultation and has an exchange with institutions or persons from Canada, the United States, Brazil, Colombia, Guatemala, and French Guiana.

Since the foundation of the institute, work has been done constantly on helminthology, investigating the incidence of the different parasites in man and animals. Much data on cisticercosis has been collected.

Investigations on oxyuriasis have been carried out in thousands of children and adults in Mexico City and other parts of the country. The presence of Enterobius vermicularis has been investigated in the perianal and vulvar regions. In many cases other helminthic eggs have been found. The importance of repeated stool examinations has been emphasized, and a comparative study between the Hall and Graham techniques for the diagnosis of oxyguriasis has been done.

Trichinosis in muscles was investigated by the digestion method in 1,000 human diaphragms in Mexico City and in another 1,000 subjects by the Bachman test.

The institute has held a very important place in the field of mycology. Since the beginning the mycology laboratory has tried to determine which of the mycoses exist in Mexico. The Actinomyces of the actinomycotic mycetoma were studied experimentally in laboratory animals and under the electronic microscope. Cultures were made in chicken embryos. It was determined which fungi infected humans and which laboratory animals are the best for experimental infection.

It was found that 90% of cases of actinomycosis in Mexico are caused by Nocardia mexicana. Less frequent are Actinomyces madurae and A. pelletieri. In study of Actinomyces under the electronic microscope, it was found that the acid-fast Actinomyces have a thin capsule similar to that of the Mycobacterium tuberculosis. By cultures in chick embryos, frank differences were found between the acid-fast and non-acid-fast Actinomyces. The work carried out suggests that the Actinomyces mexicanus is the same as the Actinomyces braziliensis, the most important species in Brazil. Maduromycotic mycetoma has also been found in Mexico, although it is rare in comparison to actinomycosis. It is caused by a Cephalosporium.

Since 1941 the existence of chromoblastomycosis in Mexico was indicated, after culture of Hormodendrum pedrosoi in a case described by the institute as probably a case of dermatitis verrucosa.

In a series of publications, the dermatophytes causing tinea of the scalp, skin, and nails were described, identifying species epilans, sabourandi, and sulfureum with T. tonsurans.

Sporotrichosis has also been studied, and an antigen for diagnosis has been elaborated from the hydrocarbonated fraction of the Sporotrichum sckenkii; this antigen used for intradermal tests substitutes the culture for the diagnosis of sporotrichosis. This test has been adopted in the majority of the medical institutions in Mexico and some in the United States.

Several antagonists have been isolated for the most important pathogenic fungi: Cryptococcus neoformas, Blastomyces dermatitides, and Nocardia brasiliensis. Means of utilizing these species like antibiotic substances against mycosis are being studied. It was found that streptomycin is less efficient than penicillin in the treatment of infections caused by Actinomyces bovis. Actidione showed an inhibiting effect on yeast-like fungi, and is therefore useful in the treatment of cryptococcosis and moniliasis. Among the chemical products studied, a combination of sulfanilamides and copper showed a specific effect against N. brasiliensis, the agent causing actinomycotic mycetoma in Mexico, for which no treatment was known.

NORWAY

Tuberculosis in the Armed Services.—Reports on tuberculosis in the services continue to show how difficult it is to avoid an outbreak of tuberculosis in men on active duty, however impressive modern methods for combating tuberculosis may appear on paper. In an article on tuberculosis in the fighting services in 1949-1950, published in the organ of the Norwegian Medical Association, *Tidsskrift for den norske laegeforening,* for May 1, 1953, Dr. Herman Höst admits that during the postwar years tuberculosis has proved to be the most serious medical problem confronting the authorities. During the five year period 1947-1952, a total of 3,046 servicemen received compensation for disease contracted in the service, tuberculosis being responsible in 1,337 of these cases (43.9%). But it is encouraging to note that expenditure in this field has shown a sharp decline, for about 1,100,000 kroner were paid to 335 patients with tuberculosis in the budget year 1947-1948, whereas for the budget year 1951-1952 only about 440,000 kroner were distributed among 120 such patients. Since March, 1951, provision has been made for the tuberculin testing, before they are called up, of all who are liable for military service, the background of this measure being the law of 1947 providing for tuberculin testing and compulsory vaccination with BCG. Exemption from such vaccination can, however, be claimed by persons who continue to be tuberculin-negative after repeated vaccinations. During service in the armed forces mass radiography is repeated every third month, negative reactors being retested with tuberculin at the same intervals. Provision is also made for a search for tuberculosis in the home environment of the men found to be tuberculous while on active duty.

In his discussion of the merits of the various diagnostic tests of tuberculosis, Dr. Höst points out the shortcomings of both mass radiography and an ordinary clinical examination. Faith in the former is apt to render the latter somewhat perfunctory, and the former certainly requires technical skill and first-class equipment. Among 680 men found to be tuberculosis-suspect, there were as many as 141 who proved on closer observation to be nontuberculous, nonspecific pulmonary infiltrations being the commonest source of error. A leading article in the same number of the journal stresses the importance of linking up the different tuberculosis tests in such a way that their findings can be made available promptly and translated into action. It is urged that BCG vaccination should be followed by tuberculin control long before recruits are called up.

Care of Mental Defectives.—Substantial advances have been made in Norway with regard to the care of mental defectives since the end of World War II, when there were only three establishments for their care, with a total of 495 beds. By March 1, 1952, this number had risen to 1,115 distributed over 23 establishments approved officially. These establishments are in two cases state owned, with 446 beds, and in two others municipal owned, with 70 beds, the remainder being owned by voluntary health organizations or private persons. This combination of state and private activities in the approach of a social problem is typical of what happens in Norway in many other spheres, and in its planning for the future the government makes a point of encouraging private enterprise as a much valued corollary to its own doings. In the spring of 1952 the Norwegian Parliament endorsed a plan devised by the Department for Social Affairs for dealing with mental defectives. The number of low grade mental defectives incapable of benefiting from special educational facilities for mental defectives of higher grades can hardly be under 10,000 to 11,000. It is calculated that 6,500 beds are needed in homes for mental defectives, at the rate of about 2 per 1,000 of the population, but this figure must at present be regarded as out of reach, and the government's plan provides for only 5,200 beds. These are to be filled as rationally as possible, the mental defectives who cannot be accommodated in these beds being provided for in private homes and families, day homes, or the like. The 5,200 beds will, for the most part, be distributed among seven large regional establishments, each with several hundred beds and catering to communities with a population of about 500,000 to 600,000. Each of these regional establishments is to be composed of a series of smaller units devoted to some special function. These establishments are to be responsible for the care not only of mental defectives within their gates but also of those in smaller establishments in the neighborhood, including private homes and families. These subsidiary centers will include homes for the aged, a tuberculosis department, and quarters for children under 10. Since the war the government has concentrated on extending and modernizing its two original large establishments, on the assumption that the provision of smaller units such as day homes belongs to the sphere of private enterprise. There is much to be said in favor of more or less autonomous units whose administration provides scope for local enterprise.

Deaths of Dr. Karen Margrethe Simonsen Eek and Dr. Axel Scheel.—Born in Denmark on June 5, 1903, Dr. Simonsen received her medical training in Copenhagen and spent the first three years of her medical career in Danish provincial hospitals. Mental disease in children attracted her attention early, and her thesis for the degree of doctor of medicine was largely concerned with the psychic handicap of children reared in institutions where cleanliness and an adequate supply of vitamins do not compensate for a lack of personal care and love. Her studies abroad, including the United States, were largely concerned with the psychiatric problems of adults and children, but she did not neglect to equip herself with experience in somatic disease. Her appointments at the Rigshospital in Copenhagen led up to her becoming first assistant physician to the newly created children's wing of the psychiatric department. To further her experience, she began private practice in child psychiatry in Copenhagen. A few months later she was invited to take charge of the recently created department of child psychiatry at the Rikshospital in Oslo. Here she concentrated her efforts, determined to live and work as a native of the country of her adoption. In the summer of 1951, she married the Norwegian radiologist Dr. Sigurd Eek. She also adopted two boys. Her singularly serene personality created an atmosphere in her department that children and even adults were quick to sense and appreciate, and the cordiality of her staff reflected the spirit infused by this quiet, middle-aged woman whose death on May 13, 1953, means an irreparable loss to child psychiatry in Norway.

Dr. Axel Scheel, who died in May, 1953, at the age of 47 after about a half year's illness, came of medical stock, both his father and his grandfather having made their mark as physicians in Norway. His father was responsible, with Dr. Heimbeck, for the introduction of BCG vaccination in Norway. His son Axel qualified as a physician in 1932. After holding various hospital appointments, he began in 1936 to specialize as a radiologist, and from that time on he published several important works on his subject. Like many other patriotic Norwegians he worked abroad during the German occupation of Norway. From 1946 to 1950 he was in charge of the radiological department of the Aker's Hospital, and in 1950 he took charge of the radiological department of the Norwegian Radium Hospital. His doctorate thesis in 1946 was concerned with tuberculosis of the bones.

SWEDEN

Syphilis in Would-Be Blood Donors.—In the spring of 1952 the Swedish Red Cross organized a drive for blood donors in the County of Malmöhus, with the result that 5,908 new donors were registered. Among them were 4,009 who were willing to serve not only in wartime but also in peacetime. The typing of these prospective donors was undertaken at the blood donor center of the Malmö Hospital, while the pathological-bacteriological department of the same hospital undertook the search for cases of syphilis. In *Svenska läkartidningen* for April 17, 1953, Dr. Bengt Willert and Dr. Sten Winblad have published their findings of 5,668 would-be donors and their experiences with regard to the elimination of persons with syphilis from among them. After the first 460 examinations had been carried out with Meinicke's reagent for screen testing, it became evident that this was not enough by itself. In addition to this test, a complement fixation test with cardiolipin as antigen was carried out, and, in doubtful cases, multiple tests were carried out next day with Meinicke's, Kahn's, and complement fixation tests. Altogether, 5,636 samples of blood were examined for syphilis. A slight Meinicke reaction was observed in 145 cases and a definitely positive Meinicke reaction in 54 cases. Thirteen persons had a positive Wassermann reaction, but there were only eight cases (1.4 per thousand) in which the reaction was positive to all three tests, Wassermann, Meinicke, and Kahn. There were five cases in which the Wassermann test was positive, while the other tests were negative. Dr. Willert and Dr. Winblad have come to the conclusion that in searching for syphilis among prospective blood donors, screening with only one test is not sufficient for the purpose. At least two tests are needed, and one of them should be a complement fixation test according to the Wassermann technique.

Licorice Therapy in Cases of Gastric Ulcer.—At the surgical department of the Sollefteå Hospital large doses of licorice have been given to a score of patients suffering from gastric and duodenal ulcer. Reporting on this treatment in *Svenska läkartidningen* for April 10, 1953, Dr. B. Gylling points out that the introduction of licorice therapy of gastric ulcer comes from a small town in Holland, where a patent medicine containing licorice became such a success that licorice came to be seriously studied as a remedy for gastric ulcer. Dr. Gylling's patients were, for the most part, so ill that surgery was indicated, and the drug was given (about 55 gm. daily) finely powdered and suspended in water, one mouthful every hour of the day for one to three weeks. The patients with duodenal ulcer did not respond as quickly to this treatment as those with gastric ulcer, who usually showed rapid improvement. But some of the patients did not tolerate this treatment well and requested its discontinuation, having experienced no relief, Dr. Gylling writes: "We have been unable to discover any remarkable healing of an ulcer in comparison with the time taken for an ordinary ulcer cure to effect recovery."

One of Dr. Gylling's patients was remarkably instructive with regard to her reaction from time to time to this therapy. She was a nurse, aged 52, with a history of gastric symptoms for more than 15 years and radiologically demonstrable gastric ulcer. Her symptoms vanished after only one day's treatment, and she was well satisfied with the response to it during the next five to six weeks, after which headache and severe edema of the face developed. These symptoms disappeared promptly when the drug was withheld, but the ulcer symptoms returned two months later. The licorice therapy was resumed, the ulcer symptoms disappeared, and a week later the edema and headache returned. The same cycle of reactions followed.

TURKEY

Recovery After Pneumonectomy for Lung Cancer.—In *Anadolu Kliniği*, Istanbul periodical, Recai Ergüder, professor of the second surgery clinic of the Gülhane Military Medical Academy Hospital, and his senior assistant, Dr. Orhan Bumin, described the clinical manifestations and diagnostic procedures of carcinoma of the lung. After a brief description of the first case in which surgical treatment has been successful in Turkey, they discussed the technique of pneumonectomy, the operative mortality, and the five year recovery rate. The patient, a 50-year-old military officer, had influenza for two weeks but had not fully recovered when he returned to duty. After three days the cough increased, pain developed in the back, his temperature rose to 39 C, and the patient was admitted to the hospital. He was weak, had no appetite, and had an audible wheezing cough of 20 days' duration. His father had died of cancer of the tongue. The patient himself had not had any serious illness. For 30 years he had smoked a pack of cigarettes daily, but he had never used alcohol. From time to time he had had mild bronchitis and, as a result of his smoking, a cough with expectoration in the mornings. On admission to the hospital the patient had an elevation of temperature that continued for 20 days, reaching 39.8 C. Results of urinalysis and the blood chemistry were normal. The leukocyte count was 22,000, and the erythrocyte sedimentation rate during the first day was 45 mm. per hour and subsequently attained 123 mm. A histoplasmin test and sputum test for tuberculosis bacilli were negative. Clinical and radiological examination and bronchoscopy revealed vegetation and an easily bleeding tumor on the bronchi leading to the upper lobe of the left lung. Histological examination of the material obtained by bronchial aspiration confirmed the diagnosis of cancer. In preparation for the operation the patient was given penicillin and vitamins B and C. During the operation the patient was transfused with 2,000 cc. of blood. Nitrous oxide, ether, and oxygen anesthesia was used. After pneumonectomy had been performed, the left pleural cavity was flushed with penicillin and streptomycin and, as recommended by Bailey of the United States, a temporary tracheotomy was performed to insure proper aspiration of the bronchi. The patient was given oxygen continuously. On the third day the tracheotomy tube was removed and the incision closed. Several roentgenograms made three days after the operation revealed that over the center of the mediastinum fluid had collected in the left pleural cavity and that the diaphragm had risen. According to the report Prof. N. Eranil of the pathology department of the Ankara University medical faculty, the tumor was an oat cell carcinoma. The patient recovered within two months and returned to active duty.

Leprosy in Afghanistan.—In *Klinik*, Bursa Medical Society periodical, Prof. Halil Gürün, a Turkish physician and graduate of Istanbul University, who was in the service of the Afghanistan government for four years as chief of the Kabul Medical School department of dermatology, reports that leprosy (Hansen's disease) in that country is endemic and manifestly increasing. In the author's estimation there are 25,000 to 30,000 persons with leprosy in that country. All are without medical care and resort to home remedies as best as they can. Dr. Halil Gürün reports that 22 (0.16%) of 12,389 patients examined during 1949 at the dermatology outpatient clinic of the Kabul Medical School had leprosy. In 1950, 32 (0.17%) of 19,504 patients, in 1951, 57 (0.25%) of 22,419 patients, and in the first six months of 1952, 142 (0.43%) of 13,509 patients had leprosy. The majority of the patients had lepromas on the face, the extremities, the abdomen, and the thorax. Testicular and laryngeal lepromas, extreme malformation and perforation of the buccal and nasal cavities, and mutilation of the hands and feet have been observed. In all patients Hansen's bacilli were present in tissue and serologic tests were positive.

Besides persons from Kabul itself, patients had come from the villages at the border of Turkistan, Pakistan, and central and southern Afghanistan. There have been no patients from the far southwest regions. Of the 163 patients who in turn occupied the seven beds set aside for leprosy patients at the Kabul Medical School, the only place where chaulmoogra oil and sulfonamides are available, 6 were women and 7 were children. Three of the children were girls 7 to 11 years old, and four were boys 9 to 11 years old. The majority of the men were of military age. On discharge the patients were given disulfanilamide (Disulon) tablets. The clinical types of leprosy encountered among the 163 patients were the anesthetic in 54, mixed in 48, tubercular in 27, lepromatous in 29, and mutilating lepromatous in 5.

In August, 1952, the author accompanied Dr. S. Christiansen on a short tour of investigation sponsored by the World Health Organization. A mobile clinic and laboratory was opened in five villages in Hazaracat, a region long famous for its leper colonies. Of 314 persons examined, 2 had lepromatous leprosy, 3 had maculoanesthetic leprosy, and 6 had cicatrized atrophy, anesthetic thermoanalgesic plaques, polyadenopathy, and nasal mucosa ulcerations. Investigation at the Kabul laboratory revealed that 13 patients had Hansen's bacilli in tissue specimens.

After discussing the pitiful plight of persons with leprosy, the author concludes that ignorance, dire poverty, superstition, lack of medical care and medicaments, the inability of the government to remedy the situation because of insufficient medical personnel, the absence of funds for medicaments and an insufficient health budget, which is not even enough to contend with tuberculosis, malaria, syphilis, trachoma and parasitic diseases, and the seasonal epidemic are mainly responsible for the regrettable conditions. Outside assistance is urgently needed.

Spontaneous Rupture of Uterus.—Also in *Klinik* Dr. Arif Sözen, chief of the Bursa Maternity Hospital and his associate, Dr. Mehmet Yurdabag, reported a case of spontaneous rupture of the uterus. The 38-year-old patient had had seven normal deliveries. Fifteen hours before the eighth delivery labor pains began, after seven hours the hand of the baby presented itself, and an hour later the labor pains ceased. When extreme pain in the abdomen followed, the patient was taken to the maternity hospital. On admission the patient was weak and pale, had a temperature of 36.7 C, and a pulse rate of 104. The abdomen was painful and swollen, on the left side the fetus was palpable, and on the right side the contractions of the uterus were evident. Then the right arm and shoulder and the umbilical cord presented itself, and there was a dark red secretion from the vagina. A cesarean section was performed, and the child was found among the intestines. The rupture, which had occurred on the left side of the uterus, was 8 cm. long, extending from the parametrium to the vagina. It was sutured and a supravaginal hysterectomy was performed. The abdomen was flushed with 2 million units of penicillin. For five days the patient was given 1,600,000 units of penicillin injections and 1 gm. of streptomycin. Recovery after two weeks was uneventful. Among the 5,200 deliveries at the Bursa Maternity Hospital, 16 (0.3%) uterine ruptures have been observed. According to the western medical literature, the incidence is from 0.12 to 0.3%.

Report on Leukemia.—In *Sağlik Dergisi,* the official periodical of the Ministry of Health and Social Assistance, Dr. Ihsan Aksan, chief of the Ankara General Hospital medical department, and his associate, Dr. Naci Arun, have published a report on 460 cases of blood diseases seen during a 10 year period. Of the 460 patients, 229 had hypochromic anemia, 66 splenic anemia, 60 hyperchromic anemia, 31 chronic myeloid leukemia, 18 hemorrhagic diathesis, 10 secondary thrombocytopenia, 9 chronic lymphoid leukemia, 7 lymphogranulomatosis, 6 acute myeloid leukemia, 6 acute lymphoid leukemia, 6 Banti's disease, 5 hemolytic anemia, 2 polcythemia, and 1 case each of essential thrombocytopenia, capillary toxicosis, pernicious anemia, hemophilic anemia, and achroacytosis (Mikulicz's disease). All the patients were males, and their ages ranged from 10 to over 60 years. Thirty-six had had malaria. Seven patients had typhoid, five pneumonia, three rheumatism, three icterus, one pleurisy, and one dysentery. None of the patients had had tuberculosis. In none of the cases was there a hereditary factor.

Thirty-nine patients had chronic and 13 acute leukemia. Of these, 34 patients had myeloid leukemia and 18 had lymphoid leukemia. The onset of acute cases resembled that of septicemia, with a temperature of 37.5 to 40 C, chills, aesthenia, sudden pallor, and in acute attacks hemorrhagic diathesis. The blood pressure of the 52 patients with leukemia was normal or subnormal. The sedimentation rate accelerated as anemia became more pronounced or other factors entered into the picture. The blood of all patients had a very high uric acid content. Because of the high protein metabolism, the basal metabolism was high in most of the patients with advanced myeloid and lymphoid leukemia, this was not so apparent in patients with aleukemia. Urinalysis revealed traces of albumin and a high uric acid content in all cases. When thrombocytes neared the danger zone a tendency to hemorrhage was observed. In some cases the cause of hemolytic anemia was not quite evident. In a great many cases, especially when the spleen was involved, the cause seemed to be the interaction of the erythroblastic reaction, erythropoiesis, erythrophagic histiocytes, and reticuloendothelial system.

During the initial stage in acute leukemia, the number of leukocytes per cubic millimeter was generally below 100,000; in four cases it was 3,000 to 10,000 and in five cases 38,000 to 76,000. In chronic leukemia the number of leukocytes per cubic millimeter was 100,000 to 800,000, with the whole series of myelocytes present. In acute cases mononuclear monocytes predominated, and in chronic cases all types of myeloblasts were found. Though the relation of the number of leukocytes to the severity or the duration of the disease was not definitely established, it was observed that in the final stages of a leukemia there was generally an increase in leukocytes. Predominance of mature forms indicated recovery.

A 19-year-old patient with a temperature of 38 C had been ill with rheumatism for three months. The pain in the joints had not subsided, and he perspired profusely during the night. Examination on his admission to the hospital revealed a painful and swollen left knee, enlarged lymph nodes on both sides of the neck, the clavicles, and axillas, a palpable spleen, and chronic tonsillitis. The patient had a temperature of 37.6 C, the pulse rate was 100, the sedimentation rate 18 to 40 mm., and the blood pressure 120/80 mm. Hg. There were 46,000 thrombocytes and 1% reticulocytes. The blood contained 8.66 mg. of total protein per 100 cc., with 4.88 mg. of albumin and 3.92 mg. of globulin. The blood examination revealed a hemoglobin level 70% of normal, 3 million red blood cells, and 10,000 white blood cells, 13% myeloblasts, 12% polymorphonuclears, 19% immature forms, and 56% lymphocytes. On the 9th day further enlargement of the spleen, the liver, and the lymph nodes became evident, and on the 11th day there was enlargement of the inguinal lymph nodes. The patient was given urethane in doses of 3 gm. daily for a total of in all 108 gm., but his condition did not improve and he died three months later. Twelve patients with myeloid and three patients with lymphoid leukemia were given urethane therapy. In eight of these patients the spleen and liver considerably decreased in size and the lymph nodes softened. One patient recovered so completely that he was inducted into the army on his discharge.

Antibiotic Effect of Chloramphenicol and Oxytetracycline.—In *Sağlik Dergisi,* journal of hygiene and the periodical of the Ministry of Health and Social Assistance, Dr. Mesut Okan, bacteriologist of Istanbul University Ziya Gün Foundation Research Institute, has published the results of his comparative investigation of the antibiotic effect of chloramphenicol (Chloromycetin) and oxytetracycline (Terramycin) on 15 saprophytic and pathogenic micro-organisms. The organisms included Staphylococcus aureus hemolyticus, Streptococcus longus hemolyticus, pneumococcus, Salmonella typhosus, S. paratyphi A, S. paratyphi B, Shigella paradysenteriae Flexner, Brucella melitensis, Bacillus anthracis, Escherichia coli, Aerobacter aerogenes, Proteus vulgaris, Pseudomonas aeruginosa, Candida albicans, and B. subtilis. A 1 cc. dilution of 5 and 2.5 mg. of chloramphenicol and oxytetracycline was used, and the result was observed for five hours. Except on the pneumococcus organism and the anthrax bacillus, chloramphenicol was more effective than oxytetracycline. Chloramphenicol proved especially effective on Eberth's bacillus (S. typhosa), but had very little effect on the paratyphoid B bacillus. On anthrax bacillus oxytetracycline proved very effective after only a few hours, but only half of the pneumococcus bacilli were dead after five hours. Whether 2.5 or 5 mg. of the antibiotic was used did not affect the result appreciably. When after 48 hours cultures were made on the part of the dish that had remained sterile, neither dead nor living organisms were obtained and new cultures also proved negative, indicating that the effect of these two antibiotics are bactericidal rather than bacteriostatic. When chloramphenicol was further diluted, the bactericidal result approached that of oxytetracycline.

THE LEISURE CORNER

MEDICAL STAMPS

In 1947 the Post Office Department of the United States issued a three cent stamp, reproducing Samuel Luke Fildes' "The Doctor," to commemorate the work of physicians as part of the celebration of the birth of the American Medical Association 100 years before. Recognition at this time of the physician's role in society, at least postagewise, was due in great measure to the growing awareness in many countries that medical men, medical events, and medical institutions are often fully as important as kings, queens, presidents, dictators, and generals. Actually, the number of postage stamps now commemorating medical and allied scientific achievements is so large that even the most ardent collector may be startled by the proportions of the field of medical philately. Because it is so extensive only a few aspects can be touched on in this article.

Sooner or later medical philately, if its pursuit is not to be haphazard and superficial, requires of the hobbyist a knowledge of medical history. The reason for this is that medical philately deals not only with medical portraiture, medical events, and medical mythology but also with medical buildings and institutions, stamps depicting diseases and medical botany, the Caduceus, the Red Cross, and Health Postal Taxes. In reality, there is as much room for specialization in medical philately as there is in the practice of medicine. For beginners a collection of medical portraits is probably the easiest to acquire, since many physicians have been commemorated both for their work in medicine and for their contributions and achievements in nonmedical fields.

There seems to have been no planned trend in the use of physicians' heads on postage stamps. In 1928, a famous physician's features greeted the addressee of almost every letter from Holland. The features were those of Hermann Boerhaave, who was born in 1668, and who became the first great clinical or "bedside" teacher. Until the 17th century there had been no systematic clinical teaching and all of the universities conferred medical degrees on the basis of a spoken disputation. Contact with patients was not required of medical novitiates and practitioners until Boerhaave instituted clinical teaching in 1701. In 1935 the Netherlands issued a six cent stamp depicting Frans Cornelis Donder, the famous Dutch ophthalmologist who was a notable contributor to physiological optics during the past century, introducing the use of prismatic and cylindrical lenses for the correction of certain types of eye defects and offering the first exact definitions of myopia and presbyopia.

In 1937 Austria paid homage to the old Vienna School of Medicine by placing the portraits of nine famous 19th century physicians on a series of stamps. These included Theodor Billroth, who was the founder of modern visceral surgery; Karl von Rokitansky, who performed more than 30,000 autopsies during his lifetime and who made voluminous contributions to the field of pathology; Ferdinand von Hebra, founder of the histological school of dermatology; Leopold Auenbrugger, discoverer of percussion as a diagnostic procedure; Joseph Skoda, whose name is given to the rale found in pneumonia; Carl Ferdinand von Arlt, whose treatises helped make ophthalmology an independent specialty; Theodor Meynert, an eminent neurologist and psychiatrist who made many investigations on the anatomy and physiology of the brain; Josef Hyrtl, who was the first great teacher of topographic and regional anatomy; and, finally, Gerhard van Swieten, founder of the old Vienna School of Medicine.

The likeness of Ignaz Philipp Semmelweis appeared on a Hungarian stamp in 1932 in honor of his epochal discovery of the value of antisepsis in obstetrics. This theory first met with considerable derision, but it was eventually accepted, enabling it to revolutionize the practice of obstetrics. Another brilliant investigator, whose portrait was reproduced on a postage stamp by Czechoslovakia in 1937 on the occasion of the 150th anniversary of his birth, was Johannes Evangelista Purkinje. He observed that fields of different color and equal brightness become unequally bright when illumination is decreased in brightness. To the layman, however, he is of interest chiefly because he established the permanent character of the fingerprint. The 19th century is known for the investigations of various pathologists, notably those of Louis Pasteur. In 1922, the 100th anniversary of the birth of Pasteur, the French government decreed that the three most used denominations of stamps would bear his profile, and this practice was continued for 10 years. Again, in 1936, a special set of stamps was issued to raise funds for impoverished French intellectuals, one of the stamps showing a three-quarter portrait of Pasteur holding a test tube.

Although some nations have dedicated postage stamps to physicians because of their medical accomplishments, others have memorialized them for achievement in other spheres of activity. In this connection, Germany has commemorated Johann Wolfgang von Goethe, the great 18th century poet who became interested in evolution and who was the first to use the term morphology, and Friedrich von Schiller, who spent so much time writing poetry while he was an army surgeon that he was arrested and condemned to write only medical treatises. Schiller escaped medicine by running off, thereafter devoting himself entirely to poetry, a field in which he acquired immortal fame.

Among "political truants" from medicine are physicians whose likenesses on stamps point to their ability as presidents of nations, high officials in government, or martyrs in the fight for freedom. To name a few, there are such notable American figures as William Henry Harrison, ninth president of the United States, who was a onetime pupil of Benjamin Rush, and Manasseh Cutler, honored on a United States stamp not so much because he was a good physician but because he was a good diplomat, lawyer, and minister of the gospel. Their appearances on postage stamps took place in 1938 and in 1937 respectively. Another medicopolitical figure, who once practiced medicine in New York and who later dominated French politics during World War I, was George Clemenceau, and still another was Sun Yat-sen, who became the first provisional president of China.

The medical history of the United States is replete with names of physicians who have achieved world fame. By means of the postage stamp knowledge of their accomplishments has been spread throughout the land. Among these doctors are Walter Reed, who headed a mission that eradicated yellow fever in the United States and West Indies, if not throughout the entire world; William C. Gorgas, who made the building of the Panama Canal feasible through the conquest of malaria and yellow fever; and Crawford W. Long for his pioneering with ether as an anesthetic. At the present time American postal authorities are believed to be considering a series of stamps honoring distinguished American medical men. Although as yet there is no intimation from official sources as to the time the stamps will appear or if they will be issued at all, the physicians nominated for the proposed series include, among others, William Beaumont, whose investigations on the digestive process have been hailed by some as America's greatest contribution to experimental physiology; Joseph Goldberger, a pioneer in vitamin research and responsible for the discovery that pellagra is caused by diet deficiencies; William Stewart Halsted, first surgeon to use rubber gloves and a pioneer in the use of local anesthesia; Oliver Wendell Holmes, poet, essayist and critic, who was one of the first to recognize the contagious nature of puerperal fever; William Henry Welch, pathologist and bacteriologist who helped found the Johns Hopkins Medical School; William Osler, whose textbook on medicine is still a standard; Ephraim McDowell, who performed the first ovariotomy; James Marion Sims, father of gynecology; and Howard T. Ricketts, the pathologist who demonstrated the transmission of Rocky Mountain spotted fever by ticks and typhus by lice.

One of the earliest European countries to recognize the achievements of the nursing profession philatelically was Romania. In 1906 a stamp appeared that showed Queen Elizabeth as a nurse administering to a wounded soldier. The message beneath the Queen's handwriting read, "Wounds are dressed and tears are wiped away." In 1925, stamps issued by Luxembourg depicted a nurse applying medication to the brow of an obviously appreciative male patient. In 1921, Jugoslavia issued semipostal stamps for the benefit of invalid soldiers. One of these portrayed a nurse giving succor to a wounded soldier. On the occasion of the 75th anniversary of the Red Cross movement, a number of countries commemorated the event in stamps. France and Belgium included in their commemorative set a portrait of Florence Nightingale, founder of modern nursing as we know it today.

For the avid medical philatelist there are a number of specialties coming under the general heading "Medical Stamps" that are sufficiently complicated to challenge his ingenuity. Thus, for example, the specialty of the doctor portrayed can be used to establish subclassifications of groups such as surgeons, internists, ophthalmologists, histologists, and bacteriologists. Moreover, a number of geographical features have been named for the medical great, and medical events have been the basis for several commemorative issues. Then, there are stamps dealing with medical mythology, medical buildings and sanitoriums, medical botany and pharmacology, and diseases. All in all, the joys of medical philately are endless, providing both pleasure and education in medical history for those who are drawn to the world of stamps.

BUREAU OF MEDICAL ECONOMIC RESEARCH

For several years the Bureau of Medical Economic Research has presented in The Journal *an annual summary of the Consumers' Price Index and the medical care portions thereof. Since the Bureau of Labor Statistics of the United States Department of Labor is in the process of shifting to a new and enlarged price index, this article should be regarded as the transition or "changeover" article in this series. As such, this article is of unusual value to physicians interested in the entire series of articles.*—Ed.

OLD AND NEW BASE PERIODS FOR MEDICAL CARE PRICE INDEXES

Frank G. Dickinson, Ph.D.

During World War I, a price index for consumers was developed by the Bureau of Labor Statistics of the United States Department of Labor to provide data that could be used in making wartime wage adjustments. In 1940, the Consumers' Price Index, sometimes erroneously called the "Cost-of-Living" Index, was revised, the coverage was broadened, and 1935-1939 = 100 was selected as the base period. The historic purpose of the Index has been to present a summary measure of price changes for consumers in the United States. Over the years, it has been an important tool for analyzing economic trends, and it has been used widely in recent years in collective bargaining agreements as a basis for automatic wage adjustments.

This Index is being overhauled again. A brief description of the three indexes currently available, in the chronological order of their development, will help to explain the transition. After this transition period is completed only the revised index will be published regularly.

Unadjusted Index.—This index was used before the adjusted series was developed. Its base period is 1935-1939, and all the breakdowns are available for the period from 1940 to June, 1953, although final annual averages for the sections are not yet available for 1952. This index was discontinued in June, 1953, and would have been discontinued in December, 1952, if a presidential directive requesting that it be continued for six more months had not been issued.

Adjusted Index.—This index is available for 1952 on both the old base period, 1935-1939, and the new base period, 1947-1949. It was originally computed only for 1951 and 1952 on the old base period. Later it was extended back to cover 1950 and, in fact, has been extended back to 1940; the breakdowns were carried back to 1940 only for rent and transportation. The differences between the adjusted and unadjusted indexes for any month, quarter, or year are very small except in some sections of the Index, e. g., transportation. Unfortunately, the annual indexes for 1952 have not been published for the sections of this Index, although the average for the entire Index has been published.

Revised Index.—This index started in 1953 on the 1947-1949 base only. (We shall avoid the temptation to call this the "new index" because the term "revised" is preferred.) Approximately 100 additional items are covered. For some months to come only one composite figure will be available for medical care, but eventually indexes for each of the medical care items will be published when this busy transition period for the staff of the Bureau of Labor Statistics ends.

Our major emphasis is on the effects of shifting the base period from 1935-1939 to 1947-1949, using the adjusted indexes. No figures for the revised indexes will be presented, and the only use of the unadjusted indexes (on the old base) will be in computing averages for the breakdowns for the new base period, 1947-1949. As noted already, after this transition period is over, only the revised index will be published.

Table 1.—*Consumers' Price Index and Indexes for Medical Care for Moderate-Income Families in Large Cities for 1951-1952 (1935-1939 = 100)*

Adjusted Indexes	1950 (1)	1951 (2)	1952 (3)
Consumers' Price Index	171.9	185.6	189.7*
Medical care and drugs	147.9	155.0	164.2
I. Medical care, excluding drugs	153.1	160.9	171.8
A. Physicians' fees (general practitioner, surgeon, specialist)	140.0	145.2	152.2
1. General practitioners' fees	139.8	145.2	152.4
(a) Office visit	140.9	146.0	152.4
(b) House visit	133.9	138.3	143.0
(c) Obstetric case	157.3	167.3	185.6
2. Surgeons' and specialists' fees	140.6	144.3	150.4
(a) Appendectomy, adult	137.4	141.6	148.0
(b) Tonsillectomy, child	144.0	147.2	153.1
B. Dentists' fees	154.3	160.0	163.8
1. Fillings	154.5	159.5	164.1
2. Extractions	156.9	164.5	166.4
C. Optometrists' fees, eyeglasses	128.9	134.6	136.4
D. Hospital rates	235.3	260.7	288.8
1. Men's pay ward	265.5	297.2	331.8
2. Semiprivate room	229.6	253.6	278.7
3. Private room	213.7	233.7	257.4
E. Group hospitalization †	.....	103.1	117.8
II. Prescriptions and drugs	124.8	128.4	129.7
A. Prescriptions	140.7	147.7	149.6

* All other indexes in this column were computed by the author from published quarterly indexes.
† December, 1950 = 100.

1952 LEVELS

In 1952, the Consumers' Price Index (adjusted) rose 4.1 points, from 185.6 in 1951 to a peak of 189.7. The index of medical care and drugs, which is a small portion of the entire Index, rose from 155.0 to 164.2, a gain of 9.2 points. Although the medical care portion of the Consumers' Price Index rose twice as many points as the entire Index during 1952, the medical care portion was still 25.5 points lower (on the old base). Moreover, the index of medical care and drug prices increased 64.2% over that of the base period 1935-1939, while the entire Index increased 89.7%.

What changes have occurred in the indexes of the individual medical care items? As is shown in table 1, the index of medical care, excluding drugs, was 171.8 in 1952 (row I), and the index of prescriptions and drugs was 129.7 (row II). The index of physicians' fees (general practitioner, surgeon, and specialist) was 152.2 (row IA); general practitioners' fees, 152.4, and surgeons' and specialists' fees, 150.4. With the exception of prescriptions and drugs, 129.7, optometrists' fees, 136.4, and dentists' fees, 163.8, all the items of the 1952 medical care index increased more points above 1951 than the entire Consumers' Price Index. The rise in the entire Consumers' Price Index from 1950 to 1952, 17.8 points, was larger, however, than the rise in the medical care index, 16.3 points. In other words, over this two year period, which reflects the inflationary influences of the Korean conflict, the medical

---

Director, Bureau of Medical Economic Research.

care index and the Consumers' Price Index have increased approximately the same number of index points. Durable consumer goods and food are particularly responsive to wartime uncertainties and, as they comprise a major portion of the Index, strongly influence the rapid increase (13.7 points) of the entire Index in 1951 and the much slower increase (4.1 points) in 1952 after the initial adjustments were completed. Medical care prices tended to rise more steadily over this period (7.1 points in 1951 and 9.2 points in 1952); these prices were, of course, less affected by the Korean situation.

The hospital portion of the medical care index registered by far the greatest increase of the medical care items. This increase of 28.1 points is considerably larger than the increase of 4.1 points in the Consumers' Price Index and the increase of 9.2 points in the portion of the index for medical care and drugs, of which it has been the most inflationary part. As we have previously stated, hospitals are buyers of large quantities of food and labor; they feel currently the full impact of inflationary forces. Since the base period, the increased costs of labor, food, and materials, combined with a shorter working day for nurses, are among the major factors forcing the upward adjustment in hospital room rates. It may be pointed out in passing that, while hospital room rates have increased, the average length of stay in the hospital has decreased so that the cost of hospital care for some illnesses is actually less than it was in 1935-1939. If the hospital items were excluded from medical care, however, the index for medical care would have been considerably lower than 164.2 in 1952.

TABLE 2.—*Effects of Shifting the Base Period from 1935-1939 to 1947-1949*

Adjusted Indexes	1947-1949 Average Old Base (1)	Conversion Factor 100 ÷ Col. (1) (2)	1950		1951		1952	
			Old Base (3)	New Base (4)	Old Base (5)	New Base (6)	Old Base (7)	New Base (8)
Consumers' Price Index	167.2	0.598	171.9	102.8*	185.6	111.0*	189.7*	113.5*
Medical care and drugs	138.9	0.720	147.9	106.5*	155.0	111.6	164.2	118.2
I. Medical care, excluding drugs	143.1	0.699	153.1	107.0	160.9	112.4	171.8	120.1
A. Physicians' fees (general practitioner, surgeon, specialist)	134.5	0.743	140.0	104.1	145.2	108.0	152.2	113.2
1. General practitioners' fees	134.4	0.744	139.8	104.0	145.2	108.0	152.4	113.4
(a) Office visit	135.8	0.736	140.9	103.8	146.0	107.5	152.4	112.2
(b) House visit	128.4	0.779	133.9	104.3	138.3	107.7	143.0	111.4
(c) Obstetric case	150.9	0.663	157.3	104.2	167.3	110.9	185.6	123.0
2. Surgeons' and specialists' fees	134.5	0.743	140.6	104.5	144.3	107.3	150.4	111.8
(a) Appendectomy, adult	131.8	0.759	137.4	104.2	141.6	107.4	148.0	112.3
(b) Tonsillectomy, child	137.4	0.728	144.0	104.8	147.2	107.1	153.1	111.4
B. Dentists' fees	144.3	0.693	154.3	106.9	160.0	110.9	163.8	113.5
1. Fillings	144.6	0.692	154.5	106.8	159.5	110.3	164.1	113.5
2. Extractions	146.2	0.684	156.9	107.3	164.5	112.5	166.4	113.8
C. Optometrists' fees, eyeglasses	123.3	0.811	128.9	104.5	134.6	109.2	136.4	110.6
D. Hospital rates	205.4	0.487	235.3	114.6	260.7	126.9	288.8	140.6
1. Men's pay ward	226.5	0.442	265.5	117.2	297.2	131.2	331.8	146.5
2. Semiprivate room	200.3	0.499	229.6	114.6	253.6	126.6	278.7	139.1
3. Private room	190.7	0.524	213.7	112.1	233.7	122.5	257.4	135.0
E. Group hospitalization †	.....	.....	.....	.....	103.1	.....	117.8	.....
II. Prescriptions and drugs	120.1	0.833	124.8	103.9	128.4	106.9	129.7	108.0
A. Prescriptions	131.6	0.760	140.7	106.9	147.7	112.2	149.6	113.7

* These are published indexes; all other indexes in column were computed by the author from published quarterly indexes.
† December, 1950 = 100.

The index of hospital rates excludes the prices of laboratory and other services and is based on room rates only; the index of prescriptions and drugs does not include the new "wonder drugs." Realizing the necessity for adding such items, among many others, and for reflecting certain population changes, a thorough revision of this price index series was undertaken. Beginning in January, 1953, as a result of a comprehensive revision started by the Bureau of Labor Statistics in 1949, the Consumers' Price Index acquired a "new look." There is much evidence that consumers today are buying more and buying differently than they did in the 1930's. This revision was needed, therefore, to make the Index a more realistic measure of changes in consumers' prices in the 1950's.

SHIFTING THE BASE PERIOD

In addition to the revisions, a new base period, 1947-1949 = 100, replaced the old base period, 1935-1939 = 100, for each item as well as for the Index itself. The revisions could have been made without changing the base period. The purpose of table 2 is to show the effect of merely shifting the base. On the old base, the Consumers' Price Index for 1947, 1948, and 1949 was 159.6, 171.9, and 170.2; the average for these three years was 167.2. Setting this average equal to 100 obviously depresses the index points for 1950, 1951, and 1952 to about 60% (0.598, col. 2) of the levels on the old base. Consider the case for 1951 for which all the index numbers have been published. On the old base, the Index was 185.6, and, on the new base, it was only 111.0 (185.6 divided by 167.2 equals 1.110). How does this change in the base period affect the medical care portion of the Consumers' Price Index? On the old base, the medical care indexes for 1947, 1948, and 1949 were 131.6, 140.1, and 144.9—an average of 138.9, considerably lower than the 167.2 average for these three years for the entire Consumers' Price Index. Setting 138.9 equal to 100 depresses the values of the medical care items for 1950, 1951, and 1952 to about 72% (0.720, col. 2). The medical care portion of the Index stood at 155.0 in 1951 on the old base; this index becomes 111.1 (155.0 divided by 138.9 equals 1.116) on the new base. (The published figure is 111.1, not 111.6; the small difference could be due to rounding errors, changing weights, or the new influence of "group hospitalization.") In other words, both the medical care portion and the entire Consumers' Price Index were 11% higher in 1951 than in 1947-1949. It should also be noted in table 2 that shifting the base raises the index for physicians' fees in 1952 from being below the entire Index (152.2 and 189.7) to being practically on a par with it (113.2 and 113.5). This is even more noticeable for one of the five fees, obstetric case. Within the medical care field, the effects of base shifting vary greatly. Since the conversion factor for hospital rates, 0.487, is much smaller than for any other major subdivision of medical care and drugs, the index of hospital rates is depressed most by the shift to the new base period.

Shifting the base is a procedure that statisticians avoid in using published index numbers. In this case, the base shifting depresses the entire Index to 60% of the level on the old base and the medical care portion to only 72%. Now that the originator of the Index, the Bureau of Labor Statistics, has shifted the base (altered the weights and broadened the coverage), one is justified in pointing out that both the entire Index and the medical care portion thereof stood at 111 in 1951. In 1952, however, the medical care portion was 118.2 (estimated) as compared with only 113.5 for the entire Index; in 1950, also, the medical portion was higher, 106.0 and 102.8.

Medical care is not the only portion of the Index whose position relative to the entire Index was reversed by the shifting of the base period. Selected items are shown in table 3. The indexes for rent in 1947, 1948, and 1949 averaged 120.4. In 1951, the index for rent, 136.2, was considerably lower than the 185.6 of the entire Consumers' Price Index on the old base. Shifting to the new base period, 1947-1949, the index for rent becomes 113.1 (136.2 divided by 120.4 equals 1.131), which is higher than the 111.0 of the entire Index. Conversely, in 1947, 1948, and 1949, the indexes for women's cotton housedresses averaged 291.7. In 1951, the index for women's cotton housedresses was 282.5, considerably higher than the 185.6 of the entire Index on the old base. On the new base period, however, this item becomes 96.8 (282.5 divided by 291.7 equals 0.968), much less than the 111.0 of the entire Consumers' Price Index. Upon observing this figure, one might infer that the price of cotton housedresses is now below "par" and that they are very reasonably priced; most housewives would contend that cotton housedresses are not reasonably priced, no matter what the shift in base indicates. The index for personal care (services of barbers and beauticians and for cosmetics) behaves in much the same fashion. In 1947, 1948, and 1949, the indexes for this portion of the Index averaged 174.2. In 1951, the index for personal care was 192.5; this was also higher than the 185.6 of the entire Index on the old base. Shifted to the new base, this index becomes 110.5 (192.5 divided by 174.2 equals 1.105), lower than the 111.0 of the entire Consumers' Price Index on the 1947-1949 base. Again the effect of shifting the base is to suggest that the prices of personal care items were at very reasonable levels in 1951. Are haircuts now reasonably priced?

These three examples illustrate the effects of the shift of the base period on index items that rose rapidly in price during the early years (before 1950) of the present inflationary movement, particularly during World War II. The shift in the base period makes these items appear in a favorable light to consumers by the process of concealing the high levels that they had attained by 1947-1949. It is highly probable that, after a few years of seeing indexes on the new base period, the general reader will forget the high levels attained in the base period and there will be a new generation of shoppers. Although the public will be misled, experienced statisticians will not; they may, in attempting to avoid confusion, refuse to use the new base period and shift those revised indexes, which can be so shifted, back to the old preinflationary base period, 1935-1939. This temptation will be great for medical economists because there is general agreement that physicians' fees are among the relatively static prices in a broad inflationary movement, and 1947-1949 was a very disturbed period. Fee schedules are largely established through custom and tend to remain relatively static even when the price of a bushel of wheat and of a pair of shoes doubles. A fee does not increase from $3.00 to $3.10 to $3.20; it is more likely to stay at $3.00 until a jump to $4.00 or $5.00 is warranted. Hence the index of fees would jump in any quarter in which the fees were increased in a large number of the 34 (or 46) cities. The index of obstetric fees is currently the highest of the five fees (table 2). A major explanation is the exceedingly large number of births during the years after World War II. More generally, the factors responsible for boosting the indexes of medical care items came late and slowly in the long inflationary period starting around 1940. Because the old base period coincides with the start of the "wonder drug" era studded with many other revolutionary changes in therapy, it is preferred in the field of medical care. On the other hand, 1947-1949 is a poor base period because medical demobilization was taking place. About two-fifths of the physicians were in military service in 1945. Many of them did not return directly to practice or to their prewar home towns. Medical demobilization featured the last three years of the 1940's. From the standpoint of medical economics, those three years were far too disturbed to be chosen as a base or normal period. The general case against it is, of course, our main point.

AN ANALOGY

An analogy may be helpful to the reader in reviewing the very different effects that the shifting of the base will have on different portions or items in the Index. Shifting the base from 1935-1939 to 1947-1949 may be likened to two men climbing a hill. One man, with a head start, has climbed two-thirds of the way up the hill; his companion, who started later and climbed more slowly, has climbed only one-third of the way up the hill. Stopping on a shelf, the first man turns to his companion and says, "We will stop where we are and, even though I have climbed higher than you have, we will call your position or elevation from the foot of the hill 100% and mine 100%." When both men reach the top of the hill, therefore, the first (upper) man's position will be 150% while his companion's position will be 300%, even though both have climbed to the top of the same hill.

Never before in the long history of measuring changes in prices paid by consumers has the Bureau of Labor Statistics shifted to a later base period during the course of an inflationary trend. The original base period, 1913, certainly did not represent such a period; nor did the 1935-1939 base that followed it.[1] On the contrary, this latter period was representative of a postdepression or prewar era. From this period, the base has been shifted to a period of post-World War II inflation, with consumers having saved dollars to spend for goods of wartime scarcity. (The sharp increase in births might possibly be considered a postwar spending spree in the realm of medical care.) A brief examination of the Index for 1950, 1951, and 1952 shows that this inflationary period that started before World War II was not terminated in 1949, making the new base period an interim station in the inflationary trend; a shelf on a hillside. It is difficult, therefore, for one who has watched the development of this Index and used it frequently in his studies to accept this shift. Although the arguments for overhauling the Index are strong, it seems to us and to many other economists that it was a mistake to also select a new base period before the inflationary forces had run their course. Apparently the new base period was selected by the Bureau of the Budget, and the Bureau of Labor Statistics was requested to use it in order that all major index numbers published by the various Federal agencies would have the same new base period. The necessity for such uniformity is open to question.

TABLE 3.—*Comparisons of Selected Items on the Old Base and the New Base*

	1947-1949 Average	1950		1951	
Adjusted Indexes	Old Base (1)	Old Base (2)	New Base (3)	Old Base (4)	New Base (5)
Consumers' Price Index.........	167.2	171.9	102.8	185.6	111.0
All furniture....................	212.3	215.7	106.1	236.4	111.4
Food	202.0	210.2	101.2	227.4	112.6
Medical care....................	138.9	147.9	106.0*	155.0	111.1*
Men's street shoes.............	224.0	236.1	105.4	269.4	120.3
Personal care...................	174.2	176.6	101.1	192.5	110.5
Recreation	156.2	163.8	103.4	168.5	106.5
Rent	120.4	131.0	108.8	136.2	113.1
	144.6	162.2	111.3	173.2	118.4
	291.7	271.5	93.1	282.5	96.8

* Figures published by the Bureau of Labor Statistics; direct shifting of the base gives 106.5 in 1950 and 111.6 in 1951 for medical care.

OTHER CHANGES

There are other changes in addition to the shifting of the base period. Originally there were six major groups: food; apparel; rent; fuel, electricity, and refrigeration; house furnishings; and miscellaneous goods and services. In the revised index, rent, house furnishings, and fuel, electricity, and refrigeration are combined into one major group, housing. Medical care, personal care, transportation, and reading and recreation, which were formerly four subdivisions under miscellaneous goods and services, are now four major groups, bringing the total number of major groupings to eight. A slight revision in the medical care portion of the Index results from the addition of penicillin tablets, multiple vitamin concentrates, and other than nationally advertised aspirin to the drug and prescription items.

---

[1] The old base period is five years and the new base period is three years. Consequently, the old base period is somewhat broader. This advantage is difficult to evaluate; three years could be a sufficiently long time for a good base period. Furthermore, there has been criticism of the 1935-1939 base period on the grounds that the after-effects of the depression of the first half of the 1930's were much greater on some commodities and services than on others. Ideally, a base period should be a period of time in which the interrelationships of prices are relatively free from abnormal influences.

Many new items are priced in other sections of the Index, raising the total number of items priced from about 200 in the adjusted (old) index to over 300 in the revised index. Thirty food items have been added, as well as a considerable number of articles of clothing, house furnishings, and miscellaneous goods and services. Direct measures of the effect of price change on the costs of home ownership and home maintenance are obtained for the first time, in addition to direct pricing of restaurant meals, used cars, and other items not priced in the past.

Another change that has been incorporated into the revision deals with the importance of each of the items that goes into the revised index "market basket," i. e., the "weight" assigned to each item. In the unadjusted index, spending patterns of wage earners' and clerical workers' families for 1934-1936 were used as a base for weighting, while the adjusted index reflects buying habits for 1950 and the revised index reflects buying habits in 1952. Population weights used in combining the city indexes into a revised (national) index (and into the adjusted national index) are based on the 1950 census rather than on the 1940 census that was used in the unadjusted (national) index. The list of cities in which prices are sampled has been increased from 34 to 46 and is now representative of all urban places ranging in size from very large cities to towns of 2,500 population, rather than large cities only. All of these desirable revisions and extensions probably could have been made without shifting the base period.

The unadjusted index will be issued through June, 1953, to facilitate the transition to the revised index for users of the Consumers' Price Index. After that date, the reversals created by shifting the base period cannot be so easily demonstrated; they should not be forgotten. The breakdown on individual medical care items will probably not be available soon, as no exact date for the release of individual medical care items of the revised index has yet been set. When this information becomes available, a complete analysis of the data on medical care will be made as soon as possible by the Bureau of Medical Economic Research. Unless our present thinking changes, that analysis will involve shifting the indexes back to the old base period. Our critical attitude toward the new base period will not, however, conceal the evidence that many medical care items, including hospital room rates, have risen faster than the entire Consumers' Price Index since 1947-1949.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Drunkenness: Admissibility in Evidence of Chemical Tests.—The defendant was convicted of causing death while operating an automobile under the influence of intoxicating liquor. From such conviction he appealed to the Supreme Court of Colorado.

After the accident, which gave rise to the prosecution, the defendant and the injured persons who were riding in the other automobile were removed to a hospital in Colorado Springs. A sample of the defendant's blood was taken, without objection, by a physician and thereafter analyzed by a registered medical technologist, with the result that it was found that the alcoholic content of his blood was "point two eight per cent. That is twenty-eight hundredths, or twenty-eight hundred milligrams per hundred cc.'s." The medical technologist further testified that "anything over one point five [sic] is considered under the influence of alcohol" and "would cause an impairment of his ability to drive." [Clearly what was meant was 0.15 not 1.5.] The highway patrolman who was at the scene of the accident and others who talked with the defendant after he was removed to the hospital, including the physician who attended him and took the sample of his blood, all testified that they detected the odor of liquor on his breath either at the time of the accident or shortly thereafter. The defendant contended that the admission of the testimony of the medical technologist was in error because of the following reasons: 1. It was incompetent. 2. It was violative of the defendant's constitutional rights and privileges.

The registered medical technologist, said the Supreme Court, was a college graduate and had had a year's special training at Toledo University, which is a school approved by the National Board of Registry. She had been employed at St. Francis' Hospital in Colorado Springs for about nine months, at Camp Carson near Colorado Springs for three and a half years, and at Memorial Hospital in Colorado Springs for a period of four and a half years, during all of which time she was engaged as a registered medical technologist, and her work involved blood and other analyses. She testified that in the analysis of the defendant's blood she used the Nicloux method, which is an accepted method of blood analysis. Her evidence was competent; its weight was for the jury's determination. There was testimony introduced on the defendant's behalf regarding the Nicloux method and its accuracy. Aside from any blood analysis, however, there was competent evidence sufficient to warrant the jury in determining that defendant, at the time of the accident, was driving under the influence of intoxicating liquor. Apart from the testimony of the registered medical technologist, the jury might properly have found the defendant guilty as charged. Neither we, nor the jury, the court continued, are sufficiently learned in the art of blood analysis to determine whether the Nicloux method or other of the methods to which defendant's physician testified is the better and more accurate method, but the weight to be given such testimony was a matter exclusively for the jury's determination, and we perceive no error in its reception.

Accordingly the conviction of the defendant was affirmed. *Kallnbach v. People, 242 P. (2d) 222 (Colorado, 1952).*

Taxes: Application of Social Security Taxes to Part-Time Industrial Physician.—This was an action by the Willard Battery Company to recover alleged overpayments of federal employment taxes on the salaries of part-time industrial physicians who examined and treated its employees. The case was heard in the United States district court for the northern district of Ohio, eastern division.

The contracts between the physicians and the plaintiff company, said the court, indicate that the rights and obligations of an employer-employee relationship were not being assumed. Professional services requiring a high degree of skill were contracted for, but direct control and supervision over the details and means by which the work was to be accomplished were not contemplated. The contracts provided that the physicians were to use such methods as they saw fit "in accordance with the best established practice." Under the contractual arrangements there was a mutual right to terminate. While the right to terminate might be construed to be a right of discharge (one of the indicia of an employer-employee relationship), such a construction of the provision here would not be realistic, because the parties were given the benefit of notice and there was no right to terminate immediately. The evidence shows that the physicians performed only part-time service for the plaintiff company. During the years in question, they maintained private practices, to which most of their time was devoted. They were free to leave the company premises even during the hours they were scheduled to work, if an emergency case in their private practice required their presence. The compensation they received from the company was only a fraction of their total incomes during the years in question.

One of the Treasury regulations as to who are employees provides: ". . . In general, if an individual is subject to the control or direction of another merely as to the result to be accomplished by the work and not as to the means and methods for accomplishing the result, he is an independent contractor. Generally, physicians, lawyers, dentists, veterinarians, contractors, subcontractors, public stenographers, auctioneers, and others *who follow an independent trade, business or profession,* in which they offer their services to the public, are independent contractors and not employees."

The court held that the plaintiff was entitled to a refund of the taxes it had paid. *Willard Storage Battery Co. v. Carey, Collector of Internal Revenue, 103 F. Supp. 7 (1952).*

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Ophthalmology, Chicago

49:241-374 (March) 1953

Electroretinography and Its Clinical Application. H. M. Burian.—p. 241.
Roentgen-Ray Cataract: Effects of Shielding of Lens and Ciliary Body A. J. Alter and P. J. Leinfelder.—p. 257.
Meningiomas of Anterior Clinoid Process as a Cause of Unilateral Loss of Vision: Surgical Considerations. A. Uihlein and R. D. Weyand.—p. 261.
Depth of Focus and Amplitude of Accommodation Through Trifocal Glasses. P. W. Miles.—p. 271.
Glaucoma Following Occlusion of Central Retinal Artery. C. D. Benton Jr.—p. 280.
Histologic Appearance of an Eye Four Days After Cataract Extraction. G. B. Kara.—p. 285.
Cultivation of Virus of Epidemic Keratoconjunctivitis on Chorioallantoic Membrane of Fertile Egg. F. N. Sezer.—p. 293.
Intravenous Use of Corticotropin in Optic Neuritis. E. L. Smith.—p. 303.
Observations on Vertical Divergences and Hyperphorias. K. N. Ogle and A. deH. Prangen.—p. 313.
Structural Changes in Corneas of Guinea Pigs After Wearing Contact Lenses. G. K. Smelser and V. Ozanics.—p. 335.
Glaucoma Associated with Krukenberg's Spindle. R. S. Riffenburgh.—p. 341.
Diseases of Uveal Tract. M. J. Hogan.—p. 342.

A.M.A. Arch. Pathology, Chicago

55:257-356 (April) 1953

Acid Mucopolysaccharides of Aorta. C. H. Bunting and H. Bunting.—p. 257.
Effects of High Intensity Radiant Energy on Skin: I. Type of Injury and Its Relation to Energy Delivery Rate. G .E. Sheline, E. L. Alpen, P. R. Kuhl and A. J. Ahokas.—p. 265.
Id.: II. Quantitative Dependence of Tissue Injury on Duration of Exposure. E. L. Alpen, G. E. Sheline, P. R. Kuhl and A. J. Ahokas.—p. 280.
*Milk-Aspiration Pneumonia in Human and Animal Subjects. T. J. Moran.—p. 286.
Developmental Brain Metabolism: Effects of Cortisone, Anoxia Fluoroacetate, Radiation, Insulin, and Other Inhibitors on Embryo, Newborn, and Adult. S. P. Hicks.—p. 302.
Classification of Glandular Tumors of Salivary Glands: Study of One-Hundred Forty-Three Cases. W. H. Bauer and J. D. Bauer.—p. 328.
Localizing Properties of Anti-Rat-Kidney Serum Prepared in Ducks. D. Pressman, L. Korngold and W. Heymann.—p. 347.

Milk-Aspiration Pneumonia.—Autopsy studies on both infants and adults convinced Moran that pneumonia caused by aspiration of milk is commoner than most clinicians and pathologists realize. He found milk-aspiration pneumonia frequently in infants who had feeding problems due to prematurity, central nervous system defects, or obstruction of the esophagus. Aspiration of milk accounted for sudden death in one apparently healthy infant, 3 months old, who had been allowed to take his feeding mixture with his bottle propped against a pillow, without the mother's help. In adults this disease has been found most frequently in persons confined to bed, in elderly persons with impaired reflexes, and in mental patients. It may be found in association with pneumonias caused by liquid petrolatum or with the aspiration pneumonias produced by solid foods. It may result from direct aspiration of milk or from aspiration of vomitus containing milk. The pathological changes include acute pneumonia, abscess formation, focal and widespread granulomas, alveolar thickening, giant-cell reaction, and fibrosis. The reaction is usually mononuclear and granulomatous at the time of death. The author also studied the tissue reaction produced by intratracheal injection of varying amounts of feeding mixture, human milk, or cow's milk into rabbit lungs. A reaction to the milk occurred within a few minutes of the time of injection. Smears and sections of the bronchi showed numerous red blood cells, granulocytes, and macrophages. Occasional macrophages contained fat, apparently from the milk. Later reactions to injection of milk varied from acute pneumonia to focal and widespread granulomatous lesions with giant-cell reactions and fibrosis. Although some features of the disease both in human and in animal lungs resembled certain features of lipid pneumonia caused by liquid petrolatum or cod liver oil, the general reaction more closely resembled that seen in response to injection of solid foods. Because the response is to the milk protein as well as to the fat, the term milk-aspiration pneumonia more accurately describes this disease than terms such as lipid pneumonia caused by milk. Microscopic studies of the human and animal material suggest that many of the mononuclear pneumonias occurring in infants may be caused by aspiration of milk. The authors stress the need of instructing nursing personnel in feeding methods and general nursing care designed to eliminate the hazards of aspiration pneumonia.

American Journal of Medical Sciences, Philadelphia

225:349-468 (April) 1953

Viral Hepatitis. J. Stokes Jr.—p. 349.
*Bell's Palsy Treated with Cortisone. H. H. Rothendler.—p. 358.
Body Position in Relation to Venous Air Embolism and the Associated Cardiovascular-Respiratory Changes. M. J. Oppenheimer, T. M. Durant and P. Lynch.—p. 362.
Jet Injection of Radioisotopes: Clinical Study Comparing Needle and Jet Injection of I_{131}, K_{42}, and Na_{24}. F. K. Bauer, B. Cassen, E. Youtcheff and L. Shoop.—p. 374.
*Results with Oral Hexamethonium Alone and in Combination with 1-Hydrazinopathalazine (Apresoline) in Therapy of Hypertension. J. H. Moyer, H. B. Snyder, I. Johnson and others.—p. 379.
Inactivation of Antibiotics by Cation Exchange Resins. I. S. Friedman, S. Zuckerman and E. McCatty.—p. 399.
Polymyxin B in Chronic Pyelonephritis: Observations on Safety of Drug and on Its Influence on Renal Infection. J. Hopper Jr., E. Jawetz and F. Hinman Jr.—p. 402.
Tetrazolium as an Aid to Study of Tubercle Bacilli. H. S. Willis, H. M. Vandiviere and W. H. Gentry.—p. 410.
Plasma Lipoprotein Changes Induced by Acute Local Cold Injury. L. J. Milch, R. F. Redmond, W. W. Calhoun and the Cardiovascular Research Group.—p. 416.
Reactivation of Pulmonary Tuberculosis in Relation to Subtotal Gastrectomy for Peptic Ulcer. T. A. Warthin.—p. 421.
Studies of Syphilis of Ear and Penicillin. P. Ittkin and M. J. Tamari.—p. 427.
Weber-Christian Syndrome. H. Beerman.—p. 446.

Cortisone in Treatment of Bell's Palsy.—In 1951 Rothendler reported on a patient with Bell's palsy in whom cortisone proved effective. He now presents the histories of seven patients, in six of whom Bell's palsy was successfully counteracted with cortisone. The author feels that the ability of cortisone to relieve the acute edema and inflammatory reaction of the facial nerve and its sheath, which cause marked compression of the nerve as it passes through the bony portion of the fallopian aqueduct, explains the efficacy of cortisone in peripheral paralysis of the facial nerve. This makes possible early restoration of nerve function. After atrophy has taken taken place, cortisone cannot be expected to have a beneficial effect. It is assumed that this explains the failure of cortisone treatment in the seventh patient, in whom cortisone was given only after a severe paralysis had been present for 10 days, during which time nerve atrophy, as indicated by faradic test, had taken place. This does not imply that the nerve will be atrophied in all cases after 10 days, since the degree of atrophy also depends on the severity of the inflammation. It should be emphasized, however, that cortisone

---

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individual subscribers, provided they reside in continental United States or Canada. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover only the last 11 years, and no photoduplication services are available. No charge is made to members, but the fee for other borrowers is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

is not intended as a treatment of Bell's palsy of long standing. To produce the maximum effect promptly, large doses of cortisone were given initially. On the first day doses varied between 300 and 600 mg., being given in divided doses. In the first three cases the cortisone was injected intramuscularly, but the last four patients were given cortisone tablets by mouth.

Hexamethonium in Therapy of Hypertension.—A group of 58 unselected ambulatory patients with moderate to severe hypertension were given hexamethonium orally, and were followed for from 4 to 16 months. The dosage schedule must be individually adjusted for each patient, so that excessive hypotension and serious complications will be avoided. All but 11 of the 58 patients responded with a significant (more than 20 mm. Hg) decrease in blood pressure, and in about one-half of the patients the blood pressure in the upright position returned to normal. Patients with diastolic pressures above 140 mm. Hg required only slightly larger doses than did those with pressures between 100 and 120 mm. Hg. Patients with severe hypertension complicated by cardiac failure and renal disease seemed to be particularly resistant to therapy. Cerebrovascular disease and heart disease (cardiac failure and angina pectoris) seemed to be particularly benefited by a reduction in blood pressure with hexamethonium. Impaired renal function (even if uremia is present) is not a contraindication to hypotensive therapy. In the presence of renal damage, however, glomerular filtration is decreased and small changes may precipitate progressive renal failure; therefore in such cases reduction in blood pressure must be undertaken with extreme caution and with constant evaluation of renal excretory function. Any tendency toward an increase in blood urea nitrogen contraindicates further reduction in blood pressure. If close supervision and repeated evaluation of the blood urea nitrogen is not feasible, then therapy with hexamethonium is contraindicated. The administration of hydralazine (Apresoline) and hexamethonium in combination further improved the blood pressure regulation in 11 of 18 patients in whom adequate control was not obtained with hexamethonium alone. The authors conclude that hexamethonium chloride was superior to other orally active hypotensive agents used under similar circumstances.

American Journal of Psychiatry, New York

109:721-800 (April) 1953

Memory as Biological Function. R. P. Mackay.—p. 721.
Social Structure and Psychiatric Disorders. F. C. Redlich, A. B. Hollingshead, B. H. Roberts and others.—p. 729.
*Method and Results of Electric Convuslive Therapy During Complete Curarization, with Observations on Curare Antagonist, Tensilon. J. S. Gottlieb and L. E. Morris.—p. 735.
Preliminary Observations on Convulsive and Subconvulsive Treatments Induced by Intermittent Photic Stimulation. G. A. Ulett.—p. 741.
Comparative Study of Flaxedil and Syncurine Combined with Pentothal Anesthesia in Modifying Electroconvulsive Therapy. W. L. Holt Jr., D. Niswander, D. K. Ziegler and R. Turk.—p. 749.
Eosinophil Variation in Course of Insulin Coma Therapy. H. C. Shands and D. Menzer.—p. 757.
New Drugs in Treatment of Petit Mal Epilepsy. F. T. Zimmerman. —p. 767.
Psychiatric Service in General Hospital with Special Reference to Day Treatment Unit. A. E. Moll.—p. 774.
Psychiatric Progress in California. G. N. Thompson.—p. 777.

Use of Curare in Electric Convulsive Therapy.—Although electric convulsive therapy has been proved effective for patients with depression, the depressive disorders of aged patients are often complicated by cardiovascular, neural, and skeletal disabilities, which make convulsive therapy hazardous. Patients with osteoporosis or osteomalacia have heretofore usually been denied electric convulsive therapy, because of the danger of compression fractures, but Gottlieb and Morris reasoned that these patients might be protected by curare. They report on six elderly depressed patients with severe osteoporosis of the spine and other physical disabilities who were treated by electric convulsive therapy after having been given curare. The method requires the administration of sufficient amounts of curare to produce paralysis of the voluntary musculature. Since this removes the patient's ability to breathe, it is necessary that respiration be adequately supported at all times; the technique should therefore never be undertaken by anyone who is not an expert in the maintenance of artificial respiration. In the patients described use of curare protected severely diseased vertebrae from further injury. Two of the six patients were completely relieved of their depression; two were partially relieved and were able to return home; in one patient, who had a focal cerebrovascular lesion, status epilepticus developed; and one died suddenly. All six aged patients were poor risks for any procedure; in addition to the depression and the severe osteoporosis of the spine, they also had cardiovascular and/or cerebrovascular disorders. Thus use of curare made electric convulsive therapy possible for patients who otherwise would have been unable to receive it. Edrophonium (Tensilon), which has been introduced as an antagonist of curare, was found not to provide sufficient anticurare effect to overcome respiratory paralysis. The authors feel that no antagonist of curare should be solely relied upon to overcome respiratory arrest, but should be considered as ancillary to administration of oxygen for maintenance of proper ventilation.

Annals of Surgery, Philadelphia

137:433-576 (April) 1953. Partial Index

Experimental Observations of Concussion and Contusion of Spinal Cord. L. W. Freeman and T. W. Wright.—p. 433.
"Desensitization" to Skin Homografts by Injections of Donor Skin Extracts. R. E. Billingham and P. B. Medawar.—p. 444.
Reduction of Mortality in Swine from Combined Total Body Radiation and Thermal Burns by Streptomycin. H. Baxter, J. A. Drummond, L. G. Stephens-Newsham and R. G. Randall.—p. 450.
*Exposure Treatment of Burns C. P. Artz, E. Reiss, J. H. Davis Jr. and W. H. Amspacher.—p. 456.
Carotid Body Tumors (Chemodectomas). J. R. Pettet, L. B. Woolner and E. S. Judd Jr.—p. 465.
Results of Surgical Treatment of Complete Rectal Prolapse, with Particular Reference to Suspension-Fixation Operation. J. de J. Pemberton, P. C. Kiernan and A. H. Pemberton.—p. 478.
Pigeon Breast (Pectus Carinatum) and Other Protrusion Deformitis of Chest of Developmental Origin. C. W. Lester.—p. 482.
Experimental Evaluation in Dog of Bronchial Transplantation, Bronchial, Tracheal and Tracheobronchial Resection with Reconstruction. L. B. Kiriluk and K. A. Merendino.—p. 490.
Electrical Resistance of Heart. E. J. Beattie Jr., J. M. Keshishian, N. B. Ames and B. Blades.—p. 504
Hepatic Artery Ligation for Portal Hypertension G. Desforges, A. J. A. Campbell and S. L. Robbins.—p. 507.
Experiences with Subtotal Gastric Resection. L. G. Bell, B. D. Sherer and J. J. Keenoy.—p. 516.
Surgical Treatment of Non-Neoplastic Lesions at the Esophago-Gastric Junction. W. A. Barnes and R. S. McElwee.—p. 523.
Granular Cell Myoblastoma: Report of Five Cases. T. P. E. Rothchild and R. H. Crary.—p. 530.
Complete Duplication of Colon and Terminal Ileum: Operative Treatment—Ileosigmoidostomy and Colectomy. W. E. Neville.—p. 539.
Acute Massive Venous Occlusion of Lower Extremity. E. J. Halligan, J. L. Costello and T. F. Lewis.—p. 543.
*Method of Intestinal Anastomosis Without Use of Clamps. H. Berman and F. S. Mainella.—p. 548.
Aneurysm of Hepatic Artery—Cause of Obscure Abdominal Hemorrhage. W. O. Barnett and J. A. Wagner.—p. 561.
Repair of Surgical Abdominal Wall Defect with Pedicled Musculofascial Flap. G. J. Lesnick and A. M. Davids.—p. 569.

Exposure Treatment of Burns.—During the past three years over 300 patients with burns were treated by exposure to the air, with the patients placed in bed in the most comfortable position that completely exposed the affected areas. The successful application of this effective and practicable method of local care depends on the presence of hard crusts, formed chiefly from the exudate of partial thickness burns, and on the integrity of dry eschars composed of the dead skin of deep burns. The crusts and eschars serve as protection against infection; crusts desquamate when partial thickness burns are healed and eschars must be removed, preferably by excision, before full thickness burns are grafted. If fever, prolonged leukocytosis, suppuration, or any combination of these is taken as evidence of infection, 117 (77%) of the authors' 152 patients with partial thickness skin loss remained clinically free of infection at all times; minimal localized infection occurred in 26 patients (17%) and frank suppuration in only 9 (6%). As a result of their experience, the authors state that exposure to the air is indicated in all recent burns that can be completely exposed without undue difficulty or discomfort. Exposure is easily applied, but the configuration of some burns may pose problems. Circumferential burns of the trunk cannot be adequately exposed. The outstanding advantage of the method consists in the effective control of infection in most patients. Deep dermal burns heal uneventfully under crusts, which protect the burn from mechanical and bacterial trauma. The method is potentially dangerous in that it may encourage inexperienced personnel to delay skin grafting. If very deep dermal burns fail to heal in 21 days, the covering of such burns should be removed and skin grafting applied. Granulating surfaces must never be exposed. Judiciously applied exposure is as good as other methods and, in certain types of burns, it is definitely superior. In the initial care of a burn, exposure eliminates the need for elaborate aseptic technique and for expensive dressing; it is easily taught and can be rapidly accomplished. These advantages are particularly impressive in preparation for a disaster when facilities for the proper application of dressings would probably not be available. Like all other forms of therapy, exposure to air demands careful attention to the body's physiological requirements and to details of management. It is never an excuse for neglect.

Intestinal Anastomosis Without Clamps.—A simple, safe method of intestinal anastomosis has been devised by Berman and Mainella avoiding the use of cumbersome clamps that may cause trauma to the bowel. A foam rubber sponge is sterilized and cut to size on the operating room table to fit the circumference of the bowel in question. Usually 3 by 1 by ½ in. (7.5 by 2.5 by 1.3 cm.) is the size needed for small intestines. For large intestines a strip 4 in. long is necessary. In end-to-end anastomosis the technique used is as follows: Before the bowel is opened it is cleaned of its contents. The foam rubber strip is then wrapped tightly around the bowel and sutured through a bloodless area at the mesenteric border snugly enough to prevent escape of the bowel contents. The same procedure is performed at the opposite end of the segment of bowel that is to be resected. After the resection and anastomosis have been completed, the sutures are cut and the foam rubber removed. This method has been used likewise in lateral anastomosis, in ileostomy, and in resection of the large bowel, particularly the sigmoid. The new method is particularly useful in procedures affecting the small bowels, especially in children. There is no fear of leakage. It is also suggested for use in blood vessel surgery.

Arch. Physical Med. & Rehabilitation, Chicago

34:217-264 (April) 1953

Research Methodology. K. S. Lion.—p. 217.
Rehabilitation of the Hard of Hearing. H. A. Carter.—p. 224.
Clinical Applications of Ultrasonic Energy in Treatment of Acute and Chronic Subacromial Bursitis. H. J. Bearzy.—p. 228.
*Serum Neuritis: Analysis of 16 Cases. A. L. Watkins.—p. 231..
Rehabilitation of Amputee Patient. D. A. Covalt.—p. 235.
Single Bout Elbow Flexion and Shoulder Flexion Ergography Under Conditions of Exhaustion Testing. H. H. Clarke.—p. 240.

Serum Neuritis.—The occurrence of painful, long-lasting, and disabling neuritis as a complication of serum disease in 15 young men between the ages of 16 and 37 and one 65-year-old man is reported. Of the 16 patients, 15 had received tetanus antitoxin because of an injury, usually an occupational accident, while one patient had received antimeningococcus serum for meningitis. In all the patients the neuritis was confined to one or both upper extremities. In five patients the involvement was bilateral, but unilateral paralysis always occurred on the right regardless of the site of injection, with predilection for the muscles supplied by the fifth and sixth cervical roots. In the usual clinical course the onset of serum sickness occurs 3 to 10 days after the injection of foreign serum followed by signs and symptoms of neuritis from a few hours to a few days after the serum sickness. Two of the author's patients, however, had unusual clinical manifestations as follows: in one the neuritis occurred on the sixth day after the injection and preceded the serum sickness, since the characteristic urticarial rash appeared only on the 19th day after the injection; the other patient had generalized muscular fasciculations resembling clinically and electromyographically those observed in progressive muscular atrophy. Smooth muscle of the gastrointestinal tract was also involved, but all symptoms completely subsided within a week. In the author's series adequate follow-up was not secured; but in 14 patients in whom a reaction of degeneration was present, a significant degree of paralysis developed after three months in 5, and after six months in 8 patients, two of whom showed residual weakness of 12 to 18 months' duration. Only two patients had definite return to normal power which occurred within one and three months respectively; neither had electromyographic changes. Quantitative studies of electrical excitability have been found to be of prognostic value in determining the extent and duration of disability. The mechanism of production of serum neuritis has not yet been explained. It would seem important that, because of the industrial disability occasioned by the serum neuritis, the use of tetanus antitoxin, particularly in industrial practice, be avoided whenever possible by previous immunization with tetanus toxoid.

Blood, New York

8:295-398 (April) 1953

Myeloproliferative Disorders, with Special Reference to Myelofibrosis. M. S. R. Hutt, J. L. Pinniger and G. Wetherley-Mein.—p. 295.
Influence of Intra-Arterial Administration of Histamine Upon Circulating Leukocytes of Man. H. R. Bierman, R. L. Byron Jr., K. H. Kelly and others.—p. 315.
Antifibrinolytic Activity in Plasma After Exposure to Cold and After Chymotrypsin Administration. H. Jensen, D. L. Chamovitz, E. Volkringer and others.—p. 324.
*Value of Routine Bone Marrow Culture for Histoplasma Capsulatum in Pediatric Hematology. R. J. Rohn and W. H. Bond.—p. 329.
Action of Alpha-Tocopherol Phosphate on Hemolysis in Paroxysmal Nocturnal Hemoglobinuria. M. J. Williams and M. P. Clapp.—p. 336.
Adrenal Cortex and Hemolysis. I. Phenylhydrazine. J. D. Feldman, M. Rachmilewitz, O. Stein and Y. Stein.—p. 342.
Humoral Regulation of Red Cell Production. A. Ersley.—p. 349.
Treatment of Pernicious Anemia with Crystalline Vitamin B_{12b}. L. M. Meyer, A. Sawitsky, N. D. Ritz and C. Brahin.—p. 358.
*Pelger-Huët Familial Anomaly of Leukocytes. Y. Yamasowa, T. Fujii and K. Tsuchitori.—p. 370.

Routine Bone Marrow Culture for Histoplasma Capsulatum.—Rohn and Bond say that other investigators, on the basis of 193 tests with only one positive result, had concluded that routine cultures of the bone marrow for Histoplasma capsulatum have little value in histoplasmosis case-finding. Although their own observations on adults had likewise been largely negative, they decided to make routine tests for H. capsulatum on children, particularly since their Children's Hospital serves an area in which histoplasmosis is endemic. Of 76 bone marrow cultures in pediatric patients with a variety of hematological abnormalities, 5 (6.5%) yielded H. capsulatum. In two of the five cases of histoplasmosis, organisms were observed on direct examination of the marrow and cultures were only of confirmatory value. In the other three patients with histoplasmosis, direct examination of marrow showed no signs of histoplasmosis, but culture of the bone marrow yielded H. capsulatum and was the only means of establishing the diagnosis. In none of the cases in which bone marrow culture for H. capsulatum gave negative results could the diagnosis of histoplasmosis be established by other methods. The authors are of the opinion that, while routine marrow culture for H. capsulatum is of little value in adults, it is of considerable value for case-finding in infants and children.

Pelger-Huët Familial Anomaly of Leukocytes.—The anomaly of granulocytic leukocytes first described by Pelger in 1928 is characterized by a lack of normal segmentation of the nucleus. Although the nuclear chromatin is of the mature type, cells with more than two lobes to the nucleus are few and the majority of cells are unsegmented staff forms. Huët, in 1932, disclosed the hereditary nature of the anomaly. Yamasowa and associates describe the fourth case of Pelger-Huët anomaly observed in Japan. The patient was a 50-year-old woman. To obtain further information on the familial occurrence of this disorder, 74 of the 94 blood relatives in four generations and 5 of 25 living spouses were examined. Pelger's anomaly was found in 25 additional cases, that is, in a total of 26 out of 80. The studies confirmed the hematological findings described by Pelger and others, and the genetic data support Huët's concept of the simple Mendelian inheritance.

California Medicine, San Francisco

78:257-416 (April) 1953

- Coccidioidomycosis as Tool in Study of Granulomatous Disease. J. W. Wilson.—p. 257.
- Retroperitoneal Tumors in Children: Roentgen Diagnosis. H. L. Steinbach and R. F. Brown.—p. 263.
- Mediastinal Tumors of Thymic Origin. F. M. Binkley, J. D. Thorburn, H. B. Stephens and O. F. Grimes.—p. 267.
- Is it Neurosis? J. Peters.—p. 274.
- Measurement of Thyroxin Synthesis with I^{131}: Test for Evaluation of Thyroid Function in Equivocal States. M. E. Morton.—p. 277.
- Rheumatic Fever and Rheumatic Heart Disease: Incidence in California. A. F. Goggio.—p. 280.
- Primary Pulmonary Resection for Tuberculosis: Medical and Economic Aspects in Small Sanatorium. L. M. Barber, P. C. Samson and D. Dugan.—p. 282.
- Primary Carcinoma of Duodenum. H. P. Tompkins.—p. 285.
- One-Stage Bilateral Radical Neck Dissection: Indications and Technique. S. L. Perzik.—p. 288.
- Congenital Syphilis in California. A. F. Brewer and P. K. Condit. —p. 293.
- Delinquency in Women. J. E. McGinnis.—p. 299.
- Auxiliary Treatment of Psychotic Women: Group Therapy for Their Husbands. G. Gordon and K. M. Bowman.—p. 303.
- General Anesthesia in Ophthalmology. G. L. Kilgore.—p. 309.

Connecticut State Medical Journal, Hartford

17:279-378 (April) 1953. **Partial Index**

- Importance of Occupational Disease Reporting. J. Lieben.—p. 301.
- Neoplasms in Identical Twins: (Case Reports of Three Pair). H. Pastel, K. T. Phillips and L. G. LaPalme.—p. 303.
- Measurement of Normal Interpedicular Space in Child. W. E. Landmesser Jr. and G. W. Heublein.—p. 310.
- Can Hospital Costs be Controlled? C. R. Rorem.—p. 314.

Delaware State Medical Journal, Wilmington

25:55-76 (March) 1953

- The A. B. C. of Antimicrobial Therapy. H. F. Flippin.—p. 55.
- Problems Affecting Mal-United and Un-United Femoral Shaft Fracture. P. C. Colonna.—p. 63.
- Luetic Osteomyelitis: Case Report. W. L. Bailey.—p. 71.

Endocrinology, Springfield, Ill.

52:245-366 (March) 1953

- Comparative Effect of ACTH, Cortisone and DCA on Renal Function, Electrolyte Excretion and Water Exchange in Normal Dogs. J. O. Davis and D. S. Howell.—p. 245.
- Studies on Interrelationships of Adrenal Cortex and Renal Ammonia Excretion by Rat. O. W. Sartorius, D. Calhoon and R. F. Pitts.—p. 256.
- *Comparison of Potency of Different ACTH Preparations by Intravenous and Subcutaneous Routes of Injection. R. W. Bates.—p. 266.
- Rates of Protein Synthesis, Amino Acid Catabolism and Size of Nitrogen Pool During Nitrogen Storage Induced with Testosterone Propionate, and Testosterone Propionate Combined with Growth Hormone. P. D. Bartlett.—p. 272.
- Interconversion of Estrone and Estradiol-17β by Rat Liver Slices. K. J. Ryan and L. L. Engel.—p. 277.
- Interconversion of Estrone and Estradiol by Human Tissue Slices. K. J. Ryan and L. L. Engel.—p. 287.
- Inhibition of Development of DCA Hypertension by New Synthetic Steroid. R. O. Stafford, L. C. Thole and K. J. Olson.—p. 292.
- Assay of ACTH Activity Based on Eosinopenic Response in Normal and Hypophysectomized Mice. R. S. Speirs.—p. 300.
- Action of Desoxycorticosterone Acetate on Mammary Gland of Immature Ovariectomized Rat. T. C. Smith and L. E. Braverman.—p. 311.
- Evidence for Dual Action of Parathyroid Extract in Maintaining Serum Calcium and Phosphate Levels. R. V. Talmage, F. W. Kraintz, R. C. Frost and L. Kraintz.—p. 318.
- Effects of Cortisone and Desoxycorticosterone on Renal Tubular Reabsorption of Phosphate and Excretion of Titratable Acid and Potassium in Dogs. K. E. Roberts and R. F. Pitts.—p. 324.
- Cyto-Physiologic Aspects of Thyrotrophic Hormone Secretion in Goitrous Guinea Pig. S. A. D'Angelo.—p. 331.
- Effect of Hypophysectomy on I^{131} Metabolism in Normal and Thiouracil Treated C_3H Mice. S. H. Wollman and R. O. Scow.—p. 338.
- Mechanisms of Partial Blockade of Stress Response in Rats by Dibenamine Analogues. C. H. Sawyer and G. R. Parkerson Jr.—p. 346.

Potency of Corticotropin Preparations.—Rats whose hypophyses had been removed were injected subcutaneously or intravenously with two different types of preparations of corticotropin (ACTH); both preparations were obtained from frozen hog pituitary glands, but one from acid extracts and the other from basic or alkaline extracts of these glands. The left adrenal gland was removed one hour and the right adrenal two hours after the injections for determination of the ascorbic acid content. As much as 100 to 1,000 times as much corticotropin was required by the subcutaneous route as by the intravenous route to cause equivalent ascorbic acid depletion. Estimates of the relative potency of the two types of corticotropin preparations differed with the route of injection by 3 to 11 times. Different estimates of potency by the different routes of administration are important clinically because most corticotropin is used by routes of injection other than the intravenous route, which is used for standardization. Most differences in physiological efficacy of corticotropin are as readily explained on the basis of different rates of absorption, which depends on the route of injection and the nature and formulation of the preparation, as on the basis of a qualitative difference in corticotropin present, i. e., the multiple factor theory. The reported data are, therefore, interpreted as not supporting the multiple ACTH factor theory.

Fertility and Sterility, Philadelphia

4:101-182 (March-April) 1953

- Higher Epididymal Obstructions in Male Infertility: Etiology and Treatment. E. W. Macmillan.—p. 101.
- Reproductive Tract Pathology in Hyperkeratosis of Cattle and Sheep. K. McEntee and P. Olafson.—p. 128.
- *Crystallization Test as Guide to Treatment of Cervical Hostility. A. Campos da Paz.—p. 137.
- New Instrument for Artificial Insemination of Cattle: Remarks on Physiologic Breeding Failure. A. Kissileff.—p. 149.

Treatment of Cervical Hostility Guided by Crystallization of Cervical Mucus.—Studies of the cervical mucus carried out by Campos da Paz demonstrated that a fern-like crystallization of the cervical mucus is present in the first half of the menstrual cycle and during the ovulation period. It is absent after ovulation, during pregnancy, and after the menopause, at which time only the cellular content of the mucus is evident. Only during anovulatory menstrual cycles with normal estrogen levels was fern-like crystallization of the cervical mucus observed at any time of the cycle. Fern-like crystallization is closely related to the estrogen function. Progesterone does not cause its appearance but on the contrary it seems to inhibit it. Fern-like crystallization is closely related to the receptivity of the cervical mucus to spermatozoa. As the crystallization loses its characteristic features, the receptivity of the mucus diminishes. When the crystallization is absent, the mucus as a rule is hostile to spermatozoa. These observations induced the author to give estrogens a therapeutic trial in 53 sterile women in the first phase of 215 menstrual cycles. All the patients treated had had negative results of a Simms-Huhner test during the ovulation period and absence of the fern-like crystallization of the cervical mucus. Estradiol benzoate was administered intramuscularly in all patients. The use of 5 mg. of the drug on the 10th day of the cycle in certain patients and on the 5th and 10th day in others were the schedules of treatment that gave the best results. With the fern-like crystallization test, the exact dose of estrogen to be used was determined easily in each case. Of the 53 patients treated by this method, pregnancy occurred in only 9. These apparently poor results are explained by the following facts: seventeen patients submitted to this treatment for one to three cycles only, abandoning it afterwards. In nine patients the inhibiting effect of cervical mucus was not the cause of the sterility. Eighteen patients are still under treatment. Of the nine patients in whom pregnancy was accomplished, fecundation occurred in the fourth cycle of treatment in two, in the fifth cycle of treatment in three, in the sixth cycle of treatment in two, and in the remaining two patients, in the eighth and tenth cycles of treatment. Estrogen therapy, although not definitely removing cervical hostility, is capable of producing the cervical receptivity necessary to the progression of spermatozoa into the cervix in every cycle. If the treatment does not give satisfactory results after at least six to eight cycles, the couple must be studied further for other causes of sterility.

Florida Medical Association Journal, Jacksonville

39:709-786 (April) 1953

Treatment of Badly Comminuted Fractures with the Rush Nail. A. H. Lisenby.—p. 727.

Otitis Externa. W. H. Turnley.—p. 729.

Pott's Fractures and Associated Injuries. L. D. Baker.—p. 732.

Phase of Postpartum Bleeding with Case Reports. M. R. Clements. —p. 739.

Importance of Early Treatment of Childhood Allergy in Modifying and Preventing Adult Allergic Disorders. W. A. McGee.—p. 741.

Journal of Bacteriology, Baltimore

65:227-354 (March) 1953. Partial Index

Oxidation of Maltose by Acetobacter Melanogenum. I. O. Foda and R. H. Vaughn.—p. 233.

Evidence for Coenzymatic Nature of Synthetic Cofactor Involved in Biotin Related Deaminase Systems. V. R. Williams and J. F. Christman. —p. 238.

Reduction of Tetrazolium Salts by Pleuropneumonialike Organisms. N. L. Somerson and H. E. Morton.—p. 245.

Growth, Respiration, and Nucleic Acid Synthesis in UltraViolet-Irradiated and in Photoreactivated Escherichia Coli. A. Kelner.—p. 252.

Variation in Shape and Arrangement of Bacterial Flagella. E. Leifson and R. Hugh.—p. 263.

Demonstration of Yeast Bud Scars with Electron Microscope. J. W. Bartholomew and T. Mittwer.—p. 272.

Method for Microscopical Study of Actinomycetes. G. Giolitti and M. Bertani.—p. 281.

Action of Aureomycin on Escherichia Coli Bacteriophage T_3 System. R. A. Altenbern.—p. 288.

Staling in Bacterial Cultures. W. R. Lockhart and D. M. Powelson. —p. 293.

*Radiation Sterilization: I. Effect of High Energy Gamma Radiation from Kilocurie Radioactive Sources on Bacteria. W. Tarpley, J. Ilavsky, B. Manowitz and R. V. Horrigan.—p. 305.

Reduction of Chloromycetin and Related Compounds by Escherichia Coli. G. N. Smith and C. S. Worrel.—p. 313.

Calcium as Growth Stimulant for Lactobacillus Casei. C. H. Eades Jr. and M. Womack.—p. 322.

Development of Bacteriophage in X-Ray Inactivated Bacteria. L. W. Labaw, V. M. Mosley and R. W. G. Wyckoff.—p. 330.

Inhibition of Anaerobic Pyruvate Metabolism of Escherichia Coli by Dihydrostreptomycin. I. L. Barkulis.—p. 337.

Effect of Carbon Dioxide and Aging on Dihydrostreptomycin Inhibition of Pyruvate Fermentation in Escherichia Coli. E. Zebovitz and J. W. Moulder.—p. 344.

Radiation Sterilization.—Tarpley and associates point out that one of the main advantages of sterilizing heat-sensitive pharmaceutical preparations with x-rays and gamma rays is the ability of these ionizing radiations to penetrate thick-walled packaging materials and yet cause a negligible temperature rise. Previous studies on the effect of radiation on various types of micro-organisms were carried out mostly with radioactive sources of low intensity. Sources of greater intensity (1,000 curie) and even more intense radioactive by-products from the atomic energy program are now available. Earlier investigations were carried out with 1.1 to 1.3 million electron volt gamma rays in the tubular radioactive cobalt (Co^{60}) and tantalum (Ta^{182}) sources developed by the Brookhaven National Laboratory. It was found that a very uniform radiation field exists within the central volume of these 1,000 curie sources which are contained in lead shields. The measurement of the radiation dose necessary to accomplish sterilization of a variety of micro-organisms and the effect on the sterilization dose of intensity of the radiation field were investigated. Heavily contaminated steroid suspensions were successfully sterilized by gamma rays produced by kilocurie sources of radioactive cobalt (Co^{60}) and tantalum (Ta^{182}). Radiation doses of between 2.7 and 3.2 megarep (rep $\times 10^6$) are required for sterilization when 0.1×10^9 organisms per milliliter are present initially. Clostridium sporogenes appears to be the most resistant organism studied in this investigation, molds and nonsporulating bacteria being killed more readily. A large fraction of the contaminating sporulating micro-organisms was destroyed by radiation doses of about 1.5 megarep, and those not killed showed morphological and cultural aberrations on subculture. Within the relatively long irradiation periods of this investigation, irradiation at lower intensity over long periods of time has no important bearing on the efficiency of the sterilization. This leads to the conclusion that many thicknesses of the material to be sterilized may be arranged around a radioactive source. By removing various portions at appropriate time intervals the radiation field may be utilized very efficiently.

Journal of Immunology, Baltimore

70:199-330 (March) 1953. Partial Index

Anaphylactic Reactions and Concentrations of Antibody in Rats and Rabbits: Effect of Adrenalectomy and of Administration of Cortisone. P. B. Dews and C. F. Code.—p. 199.

Serological Studies with Vibrio Metschnikovii. E. S. Wynne, C. L. Gott, D. A. Mehl and J. O. Norman.—p. 207.

Serologically-Active Erythrocyte-Sensitizing Substance from Typhus Rickettsiae. S. Chang.—p. 212.

Effect of Thiosemicarbazones and Dichlorophenoxy Thiouracil on Multiplication of Recently Isolated Strain of Variola-Vaccinia Virus in Brain of Mouse. S. A. Minton Jr., J. E. Officer and R. L. Thompson.—p. 222.

Lack of Agreement of Constant Toxin and Constant Antitoxin Flocculation Reactions of Diphtheria Toxin and Equine Antitoxin. H. E. Bowen and L. Wyman.—p. 235.

Studies on Immunization Against Plague: V. Multiplication and Persistence of Virulent and Avirulent Pasteurella Pestis in Mice and Guinea Pigs. D. L. Walker, L. E. Foster, T. H. Chien and others. —p. 245.

Fractional Dilution Procedure for Precise Titration of Hemagglutinating Viruses and Hemagglutination Inhibiting Antibodies. F. L. Horsfall Jr. and I. Tamm.—p. 253.

Quantitative Studies of Cross Reactions Between Shigella Flexneri Types 1a, 1b, and 3^1. S. B. Formal and E. E. Baker.—p. 260.

Immunization of Mice Against Histoplasma Capsulatum. S. B. Salvin. —p. 267.

Hemagglutinin of St. Louis Encephalitis Virus. R. M. Chanock and A. B. Sabin.—p. 271.

Antigen-Antibody Precipitates in Solid Medium with Influenza Virus. K. E. Jensen and T. Francis Jr.—p. 321.

Efficacy of Intracutaneous Route of Injection and Susceptibility of Hartley Strain of Guinea Pigs in Experimental Allergic Encephalitis. M. M. Lipton and J. Freund.—p. 326.

Journal of Investigative Dermatology, Baltimore

20:247-328 (April) 1953

*Studies of Methods of Determining Capillary Fragility: II. Negative Pressure Technique Using Petechiometer.® D. J. Perry and I. H. Linden.—p. 251.

Histology and Cytochemistry of Human Skin: III. Polymorphism and Chromotropy of Mast Cells. W. Montagna and H. P. Melaragno. —p. 257.

Super-Ego and Aggression in Circumscribed Neurodermatitis. P. F. D. Seitz, J. S. Gosman and J. Craton.—p. 263.

Study of Local Tissue Reactions in Man to Cortisone and Compound F. VI. Histopathological Studies of Local Effect of Compound F in Normal and Pathologic Skin of Man. L. Goldman, H. O'Hara E., and J. Baskett.—p. 271.

Physiology of Human Axillary Apocrine Sweat Gland. W. B. Shelley and H. J. Hurley Jr.—p. 285.

*Clinical and Experimental Studies with 8-Methoxypsoralen in Vitiligo. A. B. Lerner, C. R. Denton and T. B. Fitzpatrick.—p. 299.

Effects of Cortisone on Experimental Coccidioidomycosis. V. D. Newcomer, E. T. Wright, J. E. Tarbet and others.—p. 315.

Determination of Capillary Fragility by Means of Petechiometer.—In a previous investigation on 190 white male subjects Perry and Linden had found that the age of the subject and the time of the test exert some influence on the result of the Rumpel-Leede test. They now present the results of Petechiometer studies on 100 of these same persons. The Petechiometer consists of a bell suction cup 2 cm. in diameter. A cylinder containing a plunger is attached to the suction cup. The plunger has grooves, each of which represents an increment of 5 cm. Hg suction. With this apparatus suction ranging from 5 to 30 cm. Hg can be obtained. The various suctions are obtained by placing a stop ring on the appropriate slot on the plunger. The edge of the bell is lubricated with petrolatum and then firmly placed on the previously marked test site. Next the plunger is released, and the suction produced is applied for one minute. The lowest pressure yielding two or more petechiae was considered as the end point and was recorded as the capillary fragility (or resistance) of the test site. In each subject six areas were tested on contralateral sides. The results of the studies with the Petechiometer indicate that none of the six areas studied are adequate sites for measuring capillary resistance. The forearm, upper arm, and infraclavicular regions cannot be used because of the difference observed between the two sides. The back is not suitable because of its low median value. The thigh and legs might be of some value as test sites but require additional studies. Even if such studies would substantiate these regions for testing capillary resistance, many other factors are thought to exert some influence. The effects of temperature, barometric pressure, menses, thickness of skin, season, and allergies would have to be investigated before the Petechiometer could be considered as an accurate means of measuring capillary resistance in these areas. The authors feel that the Petechiometer is not a reliable instrument for measuring capillary fragility.

Studies with 8-Methoxypsoralen in Vitiligo.—Lerner and associates *report the results of clinical and experimental studies* with 8-methoxypsoralen (xanthotoxin, ammoidin). Of the nine patients with vitiligo treated with 8-methoxypsoralen, three patients showed striking improvement, two showed less but definite improvement, and four showed no change. The patients ranged in age from 15 months to 49 years and were treated for 1 to 20 months. The daily dose of the drug was 10 to 50 mg. given orally in divided doses supplied in 10 mg. capsules. Six of the patients showed no reaction to the drug, and three had mild symptoms not requiring discontinuation of the medication. It was observed that three of the nine patients dedeveloped marked increase in tolerance to ultraviolet light. It was not known whether this inhibition of the erythema reaction to sunlight was due to previous exposure to ultraviolet light or to the drug. *To study this problem further, 8-methoxypsoralen* was given to three persons with albinism. Two of the albinos were treated for three months and the third for two months. All showed decreased sensitivity to ultraviolet light. Two stated that they no longer wore hats when out in the sun. After discussing toxicity and in vitro studies with the drug, the authors say that the psoralen derivatives discussed in this paper have been isolated from a variety of natural sources, including expressed citrus peel oils, bergamot oil, and the plants, Ammi majus Linn, Angelica archanglica, and others. Whereas oral use of this drug decreases the erythema response of patients to ultraviolet light, local application increases this response. Persons handling the drug should not let it come in contact with the skin. One laboratory worker's arm came in contact with an alcoholic solution of 8-methoxypsoralen. Shortly thereafter, following exposure to ultraviolet light, a hyperpigmented spot developed on the arm. In appropriate doses 8-methoxypsoralen is well tolerated. Complete blood studies, urinalyses, examinations for urinary porphyrins, prothrombin times, and liver function tests, except cephalin cholesterol flocculation test, were within normal limits. Some patients had weakly positive cephalin cholesterol flocculation tests after two months of therapy. It is suggested that this test be done monthly for three months, and then at less frequent intervals, on patients receiving the drug.

Journal Lab. and Clinical Medicine, St. Louis

41:337-498 (March) 1953

In Vitro Studies of Aspects of Metabolism of Sodium by Human Erythrocytes Using Sodium^{22}. W. D. Love and G. E. Burch.—p. 337.
Comparison of Potassium^{42}, Rubidium^{86}, and Cesium^{134} as Tracers of Potassium in Study of Cation Metabolism of Human Erythrocytes In Vitro. W. D. Love and G. E. Burch.—p. 351.
Observations on Etiologic Relationship of Achylia Gastrica to Pernicious Anemia: XV. Hematopoietic Effects of Simultaneous Intravenous and of Simultaneous or Serial Oral Administration of Intrinsic Factor and Vitamin B$_{12}$. R. O. Wallerstein, J. W. Harris, R. F. Schilling and W. B. Castle.—p. 363.
Further Studies on Metabolism of L-Tyrosine in Scorbutic Monkeys: Effect of Folinic Acid, Cortisone, Adrenalectomy, and Sulfhydryl Groups on Urinary Excretion of P-Hydroxy-Phenyl Compounds. R. J. Salmon and C. D. May.—p. 376.
Comparative Effects of Menadione Sodium Bisulfite and Vitamin K$_1$ on Hypoprothrombinemia Induced by Dicumarol. W. G. Bannon, C. A. Owen Jr. and N. W. Barker.—p. 393.
Metabolism of Water and Electrolytes in Congestive Heart Failure. II. The Distribution of Water and Electrolytes in Skeletal Muscle in Edematous Patients with Congestive Heart Failure Before and After Treatment. P. J. Talso, N. Spafford and M. Blaw.—p. 405.
Range of Efficacy of Sodium *Chloride Solutions in Treating Severe* Thermal Injury in Rat. M. D. McCarthy and N. Newlin.—p. 416.
Extravascular Diffusion of Dextran from Blood. J. L. Bollman.—p. 421.
Mechanism of Change in Cerebrospinal Fluid Pressure Following an Induced Change in Volume of Fluid Space. H. W. Ryder, F. F. Espey, F. D. Kimbell and others.—p. 428.
Bronchospirometry. E. A. Gaensler, T. R. Watson Jr. and W. E. Patton. —p. 436.

Journal Nat. Cancer Inst., Washington, D. C.

13:1099-1398 (April) 1953

Use of Cell Colonies on Glass for Evaluating Nutrition and Growth in Roller-Tube Cultures. R. L. Ehrmann and G. O. Gey.—p. 1099.
Cytological Changes Following Roentgen Irradiation of the Liver in Mice. M. E. Wilson and R. E. Stowell.—p. 1123.
Tumors of Liver and Urinary Bladder of the Dog After Ingestion of 1. Acetylaminofluorene. H. P. *Morris and W. H. Eyestone.*—p. 1139.
Dose-Response Relations in Experimental Transmission of Avian Erythromyeloblastic Leukosis: II. Host-Response to Whole Blood and to Washed Primitive Cells. E. A. Eckert, D. Beard and J. W. Beard. —p. 1167.
Cytological Effect of Chemicals on Ascites Sarcomas: I. Partial Damage in Tumor Cells by Podophyllin, Followed by Temporary Regression and Prolongation of Life of Tumor-Bearing Rats. S. Makino and T. Tanaka. —p. 1185.
Damage Induced in Sarcoma 37 With Chemical Agents: V. Derivatives of Colchicine and Isocolchicine. J. Leiter, J. L. Hartwell, G. E. Ullyot and M. J. Shear.—p. 1201.
Cytological Studies of Tumors: IX. Characteristic Chromosome Individuality in Tumor Strain-Cells in Ascites Tumors of Rats. S. Makino and K. Kanô.—p. 1213.
Statistical Association Between Smoking and Carcinoma of the Lung. D. A. Sadowsky, A. G. Gilliam and J. Cornfield.—p. 1237.
Lesions Induced in Mice by Painting with p-Dimethylaminobenzene-1-Azo-2-Naphthalene. A. S. Mulay and E. A. Saxén.—p. 1259.
Survival of Mamary Tumor Milk Agent in Cultures of Heterologous Cells. M. A. Pikovski.—p. 1275.
Tobacco-Smoking Habits in an American City. C. A. Mills and M. M. Porter.—p. 1283.
Survey of Transplantable and Transmissible Animal Tumors. L. J. Dunham and H. L. Stewart.—p. 1299.

Journal of Nutrition, Philadelphia

49:373-548 (March) 1953. Partial Index

Comparative Effects of Pantothenic Acid Deficiency and Inanition on Resistance to Cold Stress in the Rat. B. H. Ershoff.—p. 373.
Effect of Vitamins and Natural Products on Liver Ascorbic Acid of Sulfasuxidine-Fed Rats. M. A. Schwartz and J. N. *Williams Jr.* —p. 387.
Effect of Fat-Free Diet on Growing Female Rats, with Special Reference to Endocrine System. T. C. Panos and J. C. Finerty.—p. 397.
Leukocyte Production in Pantothenic Acid-Deficient Mice. D. R. Weir. —p. 425.
Effect of Choline Supplements on Fatty Metamorphosis and Liver Cell Damage in Choline and Protein Deficiency. D. Koch-Weser, J. de la Huerga and H. Popper.—p. 443.
Oxidative Enzymes of Liver in Protein Depletion. W. W. Wainio, B. Eichel, H. J. Eichel and others.—p. 465.
Vitamin B$_{12}$ and Folic Acid in Milk Diets. R. A. Collins, M. Schreiber, C. A. *Elvehjem and E. B. Hart.—p. 485.*

Journal of Student A.M.A., Chicago

2:1-82 (March) 1953. Partial Index

Does the Patient Have Cancer of the Lung? J. R. Schiflett and J. H. Moyer.—p. 19.
Rice and Fruit Diet in Hypertension. R. Rosengarten.—p. 25.
Vanishing Art of Diagnosis with Eyes and Ears. W. C. Alvarez.—p. 36.

Laryngoscope, St. Louis

63:175-280 (March) 1953

Bronchologic Aid in Diagnosis. L. H. Clerf.—p. 175.
Facts and Fallacies of Bone Conduction. F. L. Weille and S. Gargano. —p. 182.
Functions of Nasal Septum as Related to Septal Reconstructive Surgery. R. I. Williams.—p. 212.
*Hearing Impairments in Children. C. E. Kinney.—p. 220.
Cysts in Ventricular Area of Larynx. H. I. Laff.—p. 227.
Spontaneous Cerebrospinal Rhinorrhea Secondary to Arnold-Chiari Malformation. N. A. Youngs and W. Peyton.—p. 241.
Joint Responsibility of the Otolaryngologist and the Internist in Removal of Focal Infection. P. S. Rhoads.—p. 249.
Indications for Tonsillectomy and Adenoidectomy in Children. G. O. Proud.—p. 262.

Hearing Impairments in Children.—Of 2,628 cases in which the causes of hearing loss in children have been analyzed during the past 15 years, 1,688 (64.2%) were classified as cases of conduction loss and 940 (35.8%) as cases of perception loss. The ratio of conduction loss cases to perception loss cases thus was 2:1. Of the 940 children with perception loss, 310 had completely normal hearing in one ear with no hearing in the other ear; the remaining 630 had partial impairment in one or both ears. It has been calculated that in 1,155 (68.4%) of the 1,688 children with conduction loss, the loss was due to otitis media; it could have been prevented in nearly every case. There were 36 children with proved middle ear effusion; in these patients diagnosis has been made during the past four years, suggesting that middle ear effusion as a cause of hearing loss in children is on the increase. In 630 children with partial impairment of hearing in one or both ears, measles were found to be the possible cause in 109 and mumps in 22. While the incidence of measles is three times as great as the incidence of mumps, in this series measles appeared to be the cause of hearing impairment in five times as many cases as mumps. These findings suggest that the measles virus as a cause of perception hearing loss in children is probably of greater significance than has been reported in previous publications. Of the 630 children with partial perception loss, 461 had had more than one hearing test; 445 (96.5%) of these showed no appreciable change in their hearing, while 16 showed a progressive loss of hearing. This progressive loss was definite and extensive. Although the incidence of progressive perception hearing loss does not appear to be very great, when it occurs it is of serious consequence. The progress was not noted until a wearable hearing aid had been put on these children; in every instance the hearing loss was more pronounced in the ear in which the hearing aid was used. Sustained sound levels of high intensity can cause permanent cochlear damage in an otherwise normal ear, and this phenomenon may prevail in a previously damaged cochlea.

Missouri Medicine, St. Louis

50:243-320 (April) 1953

Florinal for Symptomatic Treatment of Nonvascular Headache. R. E. Ryan.—p. 259.
Carcinoma of Cervix: Role of Irradiation. W. E. Allen Jr.—p. 262.
Use of Radioactive Iodine in Diagnosis and Treatment of Hyperthyroidism. R. E. Mack.—p. 267.

New England Journal of Medicine, Boston

248:571-620 (April 2) 1953

*Ewing's Sarcoma: Study of 50 Cases Treated at Massachusetts General Hospital, 1930-1952 Inclusive. C. C. Wang and M. D. Schulz.—p. 571.
*Dibenzyline: Results of Therapy in Patients with Hypertension and a Comparison with Hexamethonium, 1-Hydrazinophthalazine and Semipurified Extracts of Veratrum.—p. 576.
Clinical and Phonocardiographic Observations on the Flint Murmur. J. H. Currens, W. B. Thompson, M. B. Rappaport and H. B. Sprague.—p. 583.
Pharmacologic Aspects of Adrenocortical Steroids and ACTH in Man (Continued). G. W. Thorn, D. Jenkins, J. C. Laidlaw and others.—p. 588.
Internal Drainage of Pseudocyst of Pancreas. A. J. Ryan and T. P. Murdock.—p. 602.

Ewing's Sarcoma.—Between 1930 and 1952 27 male and 23 female patients between the ages of 3½ and 43 years with histologically proved Ewing's sarcoma were treated at the Massachusetts General Hospital. Of the total, 36 were treated with external irradiation alone, 10 with radical surgery, and 4 by surgery followed by x-ray therapy. Thirty-three (66%) of the patients were less than 20 years old. In 34 of the 50 patients the location of the primary lesion was below the waistline. Only one of the surgically treated patients lived more than five years. Nine patients died of their disease, four within one year and five within 19 months to four years after operation. In this group the primary tumor was located, with one exception, in an extremity. Of the four patients in whom operation was followed by roentgen therapy, two, each with a lesion of a rib, died within six months; one with a tumor in a fibula died within three months, and one was lost to observation. Of the 22 patients who received external irradiation aimed at a cure of the disease, 4 survived without disease for 6½, 9, 12 and 13 years, respectively. Three others are living, one for four years but with disease, and two without disease for two years and six months respectively. Of the remaining 15 patients who died of their disease, 12 died within a year of treatment. Of 14 patients given palliative irradiation, 1 lived for seven years after the initial treatment and died of widespread metastases. Of the 22 patients treated by irradiation, 15 had no evidence of local recurrence of the tumor, the tumor was not controlled in 4, and the response to irradiation was undetermined in 3. The maximum tumor dose administered was 6,000 r. A dose as small as 1,000 r was sufficient to control the local lesion in one patient. It is believed that a tumor dose of approximately 4,000 to 5,000 r, fractionated at the rate of 200 to 300 r (air incident) per day, is probably sufficient for primary control of most Ewing's sarcomas. As a result of their experience, the authors consider external irradiation the method of choice in the treatment of this particular type of malignant tumor, which does not always follow the expected relentless course of a highly malignant neoplasm. External irradiation does not deprive the patient of a useful or cosmetically desirable part. In 4 (18%) of the 22 patients treated by radical irradiation, apparent cures were obtained. Palliative radiation therapy gave not only relief of discomfort but also an often unexpectedly long and useful life.

Dibenzyline in Treatment of Hypertension.—Dibenzyline (N-phenoxyisopropyl-N-benzyl-β-chlorethylamine), a specific, orally active, adrenergic blocking agent was given to 32 patients with severe essential hypertension. Outpatients were given one gelatin capsule of 20 mg. every five hours, and the dose was increased at weekly intervals until the blood pressure fell or toxic manifestations occurred. Hospitalized patients were given a 20 mg. increase in dose every four hours until a hypotensive effect or toxic manifestations occurred. Twenty-three patients (72%) responded with a fall of more than 20 mm. Hg in the mean blood pressure. In the standing position, the blood pressure decreased to less than 150/100 mm. Hg in 15 patients (47%). The average dose of the drug required by the responsive patients was 138 mg. four times a day in those with diastolic pressures over 140 mm. Hg, and 127 mg. four times in those with diastolic pressures under 140 mm. Hg. The largest dose used in the responsive patients was 360 mg. four times daily. A few patients required as little as 20 to 60 mg. four times daily. By the end of three months, administration of the drug had to be discontinued in 8 of the 23 patients who had obtained an initial hypotensive effect because of distressing side-effects such as tachycardia, dizziness, syncope, and gastrointestinal irritation. These side-effects could not be eliminated by variation in dosage even under hospital conditions. Only 11 of the 23 patients felt sufficiently benefited to continue the treatment for more than three months. These results were compared with those obtained in similar groups of patients, 54 treated with hexamethonium, 61 treated with extracts of Veratrum viride, and 52 treated with hydralazine (Apresoline). Comparison indicated that hexamethonium is the drug of choice in hypertension. Combined treatment with hydralazine was effective in about 50% of the patients who did not obtain an adequate reduction in blood pressure with hexamethonium alone.

North Carolina Medical Journal, Winston-Salem

14:97-136 (March) 1953

Alcoholic Rehabilitation. L. Forizs.—p. 97.
Problem of Addictive Drinking: Beverage Alcohol in Simple and Complex Societies. R. E. Reed.—p. 101.
*Studies on Occurrence of Paracolon and Non-Lactose Fermenting Enteric Bacteria in General Hospital Patients. R. A. Hare and P. R. Beamer.—p. 105.
Harelip-Cleft Palate Problem. W. T. Berkley Jr.—p. 108.
Mixed Mesodermal Tumors of Uterus: Clinical Study with Report of Case. W. B. McCutcheon, J. J. McDonald and J. D. Piver.—p. 116.
Curability of Carcinoma of Uterine Cervix: Comparison of Radiologic and Surgical Methods of Treatment.' J. R. Andrews, T. O. Coppedge, D. L. Whitener and C. H. Purdy.—p. 118.
*Replacement of Portion of the Parotid Duct by a Plastic Tube R. B. Perkins and D. E. Ward Jr.—p. 122.

Enteric Bacteria.—The hospitalization of an unusual number of patients with symptoms of gastroenteritis during winter and spring rather than in summer and fall when the incidence is usually higher, stimulated studies on the feces of such patients in an effort to identify causal agents. When it was found early in the course of these studies that Salmonella and Shigella organisms were not found regularly and it was apparent that most of the cases of gastroenteritis were not caused by such well-recognized pathogens, attention was directed to the identification of all types of bacteria isolated from the stools. In all, 571 cultures were performed with fecal specimens from 130 patients with gastroenteritis and 292 persons without gastrointestinal symptoms. Five patients with gastroenteritis harbored *different* types of Salmonella organisms, and four others harbored Shigella sonnei. Of the 130 patients with gastroenteritis (including the nine with Salmonella and Shigella species), 121 harbored strains of Paracolombactrum (paracolon) organisms, Pseudomonas aeruginosa, Alcaligenes faecalis, and four Proteus species. These types of enteric organisms were isolated from only 118 of the 292 patients who had no symptoms referable to the gastrointestinal tract. Eradication of paracolon and nonlactose-fermenting enteric bacteria from the intestinal tract resulted in apparent recovery in 44 more severely ill patients who were treated with chemotherapeutic and/or antibiotic agents. It is proposed that some Paracolobactrum (paracolon) strains and certain nonlactose-fermenting enteric bacteria deserve attention as possible causal agents of gastroenteritis, especially when adequate study fails to reveal well-recognized causal agents of gastrointestinal inflammation.

Portion of Parotid Duct Replaced by Plastic Tube.—Perkins and Ward present the case of a man, aged 46, who had accidentally shot himself in the left side of the face and head. The parotid gland could be seen deep in the wound, and 4 cm. of the parotid duct had been destroyed. A 6 cm. piece of polyethylene plastic tube was placed in the wound to bridge the defect and sutured to the proximal and distal ends of the parotid duct with 000 silk suture. No parotid secretions were noted draining from the wound either before or after secondary closure. The wound was treated with warm saline soaks, and the patient was given penicillin parenterally. Nine days after the operation a delayed primary closure of the face wound was done. The polyethylene tube remained patent, and there were no complications referable to the left parotid gland nine months following surgery.

Oklahoma State Medical Assn. J., Oklahoma City

46:57-80 (March) 1953

Emphysema. W. Morledge.—p. 60.
Surgical Lesions of Chest in Children. M. Leibovitz.—p. 63.
Management of Ureteral Calculi. E. N. Lubin.—p. 68.
"Timing" in Labor. B. D. Faris.—p. 70.

Pennsylvania Medical Journal, Harrisburg

56:241-320 (April) 1953

Problems Relating to Recognition of Hydronephrosis in Everyday Medical Practice. R. M. Nesbit.—p. 261.
Treatment of Pancreatitis. J. E. Berk.—p. 265.
Surgery of the Pancreas S. P. Harbison.—p. 270.
Criteria for Use of Anticoagulants in Acute Myocardial Infarction. S. Baer, S. O. Krasnoff and W. I. Heine.—p. 274.
Acute Obstruction of the Pulmonary Circulation. T. M. Durant.—p. 279.
Recent Advances in Management of Intestinal Obstruction. H. R. Hawthorne.—p. 284.

Proc. Staff Meet. Mayo Clinic, Rochester, Minn.

28:193-216 (April 8) 1953

Severe Crush Injuries of Chest: Some Problems in Management. P. E. Bernatz, J. W. Kirklin and A. M. Olsen.—p. 193.
*Dextran for Nephrotic Edema: Clinical Experience. J. T. Olive Jr., S. D. Mills and J. S. Lundy.—p. 199.
Metastatic Hypernephroma of Thyroid Gland. O. H. Beahrs, R. L. Ginsberg and G. E. Miller.—p. 205.
Evaluation of New Agent in Treatment of Parkinsonism. D. W. Mulder.—p. 210.

Dextran for Nephrotic Edema.—A 10% salt-free solution of dextran was used in the treatment of the nephrotic edema of seven girls and five boys between the ages of 13 months and 14 years. The duration of the edema varied from one week to 16 months. All 12 children apparently had chronic nephritis; none had the so-called pure or lipoid nephrosis. Every child was hospitalized. Since a single infusion caused only a temporary increase in urinary output, to maintain the plasma colloidal osmotic pressure over a period long enough for removal of edema from the tissues, each child was given an intravenous infusion daily for 7 to 14 days. The dose of dextran was determined by the size of the child. Small children received 100 to 200 cc. of the solution, or 10 to 20 gm. daily. Large children were given 200 to 250 cc., or 20 to 25 gm. daily. The average daily dose was 1.43 gm. per kilogram of body weight. Treatment was discontinued when no further weight loss occurred or when it was obvious that diuresis would not take place. Seven of the 12 children had significant diuresis or loss of at least 15% body weight during and immediately after the period of treatment, but the diuretic effect was only temporary. All but one child had recurrence of edema after treatment was stopped. Three of the children showed reactions to the dextran during or after the first dose; the reaction was urticarial in two, and consisted in severe abdominal and back pain in one. No other deleterious effects were observed. Best results were obtained when dextran was given daily for 10 to 14 days. One child died 11 months after treatment, but information was not available regarding a postmortem examination.

Psychosomatic Medicine, New York

15:95-186 (March-April) 1953

Electroencephalogram in Psychological Disorders: Review. M. A. Kennard.—p. 95.
Studies of Personality of Patients Suffering from Urticaria. E. D. Wittkower.—p. 116.
Psychophysiological Factors in Ménière's Disease. E. P. Fowler Jr. and A. Zeckel.—p. 127.
Ulcerative Colitis: Psychoanalyses of Two Cases. A. Karush and G. Daniels.—p. 140.
Psychosomatic Concept in Dentistry. G. L. Ross, H. J. Bentley and G. W. Greene Jr.—p. 168.

Radiology, Syracuse, N. Y.

60:331-484 (March) 1953

Place of Physics in Clinical Radiology. R. H. Chamberlain.—p. 331.
Isodose Distributions for a 1,100 Curie Cobalt^{60} Unit. S. O. Fedoruk, H. E. Johns and T. A. Watson.—p. 348.
New Tissue-Like Material for Use as Bolus. D. D. Lindsay and B. E. Stern.—p. 355.
*Roentgen Hepatography by Injection of Contrast Medium *into Aorta*: Preliminary Report. L. G. Rigler, P. C. Olfelt and R. W. Krumbach.—p. 363.
*Percutaneous Transhepatic Portal Venography: Preliminary Report. H. L. Steinbach, H. R. Bierman, E. R. Miller and W. A. Wass.—p. 368.
Foreign Bodies in Kidney: Review of Literature and Reports of Four Additional Cases. J. D. Osmond Jr.—p. 375.
Radiographic Appearances of Hyaline Disease of Lungs in the Newborn: Case Report. I, Meschan, H. N. Marvin, V. H. Gordon and G. Regnier.—p. 383.
Right Pericardial Fat Pad. S. L. Cohen.—p. 391.
Chronic Arterial Occlusions of Lower Extremities: Arteriographic Study of 62 Cases. B. Milanes, E. Perez-Stable, R. Casanova and others.—p. 394.
Clinical Evaluation of Concentrated Iodine Preparation: For Intravenous Nephrography and Pyelography. A. W. Bohne and W. W. Christeson.—p. 401.
*Osseous Radiographic Findings of Chronic Renal Insufficiency. J. G. Davis.—p. 406.
Hereditary Multiple Diaphyseal Sclerosis (Ribbing). L. W. Paul.—p. 412.
Diaphragmatico-Pericardial Tear with Intrapericardial Herniation of Transverse Colon. J. Stein, H. P. Colmore and R. A. Green.—p. 417.
Mechanisms in Acquired Radioresistance of Cancer. P. O'B. Montgomery and S. Warren.—p. 421.
Method of Detecting Questionable Film Artifact. J. T. Marr.—p. 425.
Recording Timer for Arteriography. T. M. Fullenlove.—p. 428.

Roentgen Hepatography by Injection of a Contrast Medium into Aorta.—Rigler and his associates found that the introduction of a somewhat modified technique for abdominal aortography made it possible to observe the hepatic arterial circulation. The technique differed from that previously used for abdominal aortography in the following respects: (1) 70% sodium acetrizoate (Urokon) was used as a contrast material; (2) 40 cc. was injected within three seconds by the use of a no. 16 needle and a veterinary syringe; (3) the needle was directed cephalad; (4) the needle was directed upward in such a way as to enter the aorta at the level of the 11th thoracic vertebra. A roentgenogram was made prior to the injection, and a second one immediately on its completion. A third roentgenogram was taken four seconds and a fourth roentgenogram eight seconds after the injection. The contrast medium extends into the kidneys and also passes into the lower extremities. Compression bags over the lower aorta and blood pressure cuffs around the legs increased the intensity of the liver shadow to a minor degree. The authors emphasize that the opacification of the liver is the result of venous return to the portal circulation from the mesenteric veins as well as of contrast material coming into the hepatic artery. In cases of cirrhosis of the liver the authors were able to show that the opacification is greatly reduced. In addition, they were able to demonstrate carcinomatous metastases in the liver as areas of diminished density. This was surprising, since in the case of kidney tumors, the introduction of contrast medium through abdominal aortography causes increased density within the neoplasm. It seems likely, however, that the lack of contrast in an area of metastasis, as well as throughout the liver in cirrhosis, is predicated on the compression of the sinusoids, which does not permit extension of the medium into the liver parenchyma as a whole and thereby reduces its opacification.

Percutaneous Transhepatic Portal Venography.—For the percutaneous transhepatic portal venography described by Steinbach and associates, the patient is placed in a supine position, inclined upward about 10 degrees. The epigastrium is prepared aseptically, and the tissues of the anterior abdominal wall just below the xiphoid process of the sternum are anesthetized. A 16 to 20-gage needle, 20 cm. long, is inserted through the abdominal wall. The needle is advanced through the liver until blood can be aspirated or until a depth of 15 cm. is reached, and the tributaries of the hepatic vein are entered. For venography 30 cc. of contrast medium are injected as rapidly as possible, and a roentgenogram is made immediately. This will demonstrate the intrahepatic portion of the portal vein and its branches. Percutaneous transhepatic portal venography has the following advantages over other methods of portal venography. 1. No major surgery is required. 2. The procedure can be performed in the radiographic room. 3. The intrahepatic vessels are more clearly demonstrated because the contrast material is injected directly into them. The disadvantages of the procedure are that only the intrahepatic portal venous system is demonstrated; that there has been some periportal extravasation of the contrast material with the present technique; and that a needle must be inserted through the liver parenchyma. Satisfactory venograms were made on two patients without liver disease, and in three of four patients with advanced portal cirrhosis. A venogram was obtained also in one case of metastases to the liver from a cancer of the ovary. Four venograms were unsatisfactory, one because of technical difficulties, two because the roentgen exposures were delayed until the contrast substance had passed through the liver, and the other as a result of injection of the opaque medium into the liver parenchyma. This patient experienced considerable pain. Further investigation is necessary before a final evaluation is possible.

Osseous Changes in Renal Insufficiency.—Generalized osteoporosis with or without metastatic soft-tissue calcifications, has been frequently described as a complication of chronic renal insufficiency. Davis now reports on a patient with chronic renal insufficiency who showed the opposite reaction, namely osteosclerosis. At autopsy this man, aged 68, showed chronic pyelonephritis with uremia; uremic pericarditis; diffuse osteosclerosis; congestive heart failure; old healed mitral and aortic valvulitis (rheumatic); generalized arteriosclerosis; and old syphilis. Osteosclerosis due to an osteoblastic reaction can occur in many different conditions. It has been shown in association with chronic renal insufficiency in rare instances and this entity is therefore to be added to the list of differential diagnostic possibilities when osteosclerotic changes are encountered. The present case radiographically simulated one of prostatic osseous metastases or atypical Paget's disease, but actually showed none of the classical findings of either. Postmortem examination excluded other causes for the osteosclerosis.

Rocky Mountain Medical Journal, Denver

50:299-372 (April) 1953

Malignant Melanoma. E. P. Cawley and C. E. Wheeler.—p. 323.
Aspirin Poisoning in Children. H. J. Lawler.—p. 326.
Prognostic Factors in Bleeding from Gastro-Duodenal Ulceration. F. A. Barrett Jr.—p. 328.
Spontaneous Rupture of the Liver. G. L. Wright and J. M. Ball.—p. 332.
Effect of ACTH on Homologous Skin Grafts in Rabbit. F. A. Garcia. —p. 335.
Clinical Use of Antibiotics: as Determined by Simple Bacteriologic Procedures. J. R. Husted.—p. 337.

South Dakota J. Med. & Pharmacy, Sioux Falls

6:89-112 (April) 1953

Spontaneous Rupture of Normal Spleen. V. V. Volin and P. R. Billingsley. —p. 89.
Occlusion of Bifurcation Caused by Dissecting Aneurysm. R. P. Hohf. —p. 92.
Post-Operative Care of Eye Cases 25 Years Ago and Now. H. Gifford Jr. —p. 94.

Surgery, St. Louis

33:481-638 (April) 1953

Surgical Treatment of Sigmoid Diverticulitis. J. E. Lewis and A. Hurwitz.—p. 481.
Visceral Metastases from Carcinoma of Distal Colon and Rectum. H. E. Bacon and C. C. Jackson.—p. 495.
Survey of Intestinal Obstruction. R. O. Gregg.—p. 506.
Duodenal Intubation. J. W. Devine and J. W. Devine Jr.—p. 513.
The "Obstructed" Miller-Abbott Tube. M. Sims and B. Schaff.—p. 516.
Autogenous Aortic Grafts Fashioned from Smaller Artery. W. J. Potts, H. Albert and H. W. Fischer.—p. 518.
Specific Transfusion Therapy. D. W. Smith, J. Elliott and J. J. Griffitts. —p. 525.
Cervical Intracarotid Pressure Studies: Their Significance in Management of Intracranial Aneurysms. H. C. Johnson.—p. 537.
*Transverse Incision in Pharyngeal Pulsion Diverticula. S. L. Perzik. —p. 544.
*Effect of Hyaluronidase on Experimental Exophthalmos. J. W. Nuzum Jr. —p. 550.

Transverse Incision in Pharyngeal Pulsion Diverticula.—Perzik believes that the transverse collar incision is the preferred approach in the surgical treatment of pharyngeal pulsion diverticula. It results in better exposure because of the improvement in the transverse diameter of the field, whereas the up-and-down extent is equal to that obtained with the vertical incision. The viscera of the neck can more easily be rotated in order to bring the neck of the sac into the open surgical field. In cases of miscalculation as to the side of presentation of the diverticulum, or in those rare cases of double bilateral diverticula, the collar incision can be readily extended to the other side, avoiding the making of a second vertical incision. As demonstrated in one of the cases reviewed here, lesions of the thyroid can be managed through the same incision. Finally, the cosmetic result of the collar incision is definitely superior to that of a vertical incision.

Effect of Hyaluronidase on Experimental Exophthalmos.—It has been demonstrated that exophthalmos follows increased secretion of thyroid-stimulating hormone by the pituitary. Nuzum made a series of studies to evaluate the role of water retention by the retrobulbar tissues in the pathogenesis of exophthalmos and to determine the effectiveness of hyaluronidase as a means of reversing the process. Hyaluronidase is an enzyme with the property of hydrolyzing hyaluronic acid, a mucopolysaccharide, which is a determinant of hydrophilic properties of the intercellular ground substance and the barrier role of the ground substance between cells. Increased amounts of hyaluronic acid have been demonstrated in the subcutaneous tissue in localized myxedema, and the clinical and pathological similarity of localized myxedema and exophthalmos has been recognized. Nuzum administered thyroid-stimulating hormone to intact guinea pigs and to guinea pigs from which the thyroid gland had been removed. He noted no gross difference in the degree or duration of exophthalmos in the two groups. He then injected varying amounts of hyaluronidase into the retrobulbar tissues and converted exophthalmos to enophthalmos in both groups. The duration of the enophthalmos induced was proportional to the amount of hyaluronidase injected. Enophthalmos induced in guinea pigs deprived of their thyroid developed more slowly even with higher doses of hyaluronidase than in the animals not subjected to thyroidectomy. Enophthalmos was not induced in a control guinea pig following the retrobulbar injection of hyaluronidase. The completely nontoxic character of hyaluronidase suggests its clinical trial in the management of clinical exophthalmos, although the transient effect detracts from its usefulness.

Surgery, Gynecology and Obstetrics, Chicago

96:383-508 (April) 1953

- *Definitive Treatment of Saccular Aneurysms of Aorta with Excision of Sac and Aortic Suture. H. T. Bahnson.—p. 383.
- Evaluation of Eosinophil Count in Patients Undergoing Major Surgery. I. Schoen, L. Strauss and M. W. Bay.—p. 403.
- Graded Hepatic Arterial Ligations in Experimental Ascites. H. Laufman, A. Ross, V. M. Bernhard and others.—p. 409.
- Cholecystectomy and Its Relation to Stomach and Duodenum: Review of 75 Cases with Preoperative and Postoperative X-Ray Studies. R. E. Rothenberg.—p. 421.
- Multiple Peritoneal Transplantation of Splenic Tissue Following Traumatic Rupture of the Spleen. W. D. Wise.—p. 427.
- Use of Latissimus Dorsi Pedicle Graft in Radical Mastectomy. H. G. Moore Jr. and H. N. Harkins.—p. 430.
- Paralysis of Muscles of Chin; Surgical Treatment. H. Marino.—p. 433.
- *Eosinophilic Granuloma of Vulva. D. G. McKay, R. B. Street Jr., K. Benirschke and C. J. Duncan.—p. 437.
- *Urinary Excretion of Corticoids and 17-Ketosteroids Following Major Operations; Correlation with Other Aspects of Metabolism. J. D. Hardy, E. M. Richardson and F. C. Dohan.—p. 448.
- Gastrojejunocolic Fistula. S. A. Localio, P. Stone and J. W. Hinton. —p. 455.
- Subphrenic Abscess. J. J. Berens, H. K. Gray and M. B. Dockerty. —p. 463.
- New Technique of Venography of Lower Extremities with Urokon. W. H. Boyce, J. H. Detar and S. A. Vest.—p. 471.
- Metastasizing Bronchial Adenomas. R. P. McBurney, J. W. Kirklin and L. B. Woolner.—p. 482.
- Metabolism of Fresh, Transplanted, and Preserved Cartilage. D. M. Laskin and B. G. Sarnat.—p. 493.

Excision of Sac and Aortic Suture in Saccular Aneurysms.—Saccular aortic aneurysms are usually caused by syphilis, and most of them occur in middle-aged patients, in whom they may be the only lesion threatening the patient's life and well-being. According to Bahnson, only two methods of treatment are currently in common use for aortic aneurysm, namely, intrasaccular wiring and the employment of fibrogenic or reinforcing materials. The former method, although beneficial to many patients, requires wire which, because of its special insulation, is no longer available. Wrapping with cellophane has given good results in isolated instances, but in a large series this technique has been helpful as palliation in only 40% of the patients. Although excision is an established method of treatment for aneurysms of peripheral arteries, it has been applied to aortic aneurysms only in isolated instances. Bahnson is convinced that excision of the sac and preservation of aortic continuity constitute the ideal treatment, since removal of the aneurysm relieves symptoms arising from pressure on nerves or vital structures and avoids later dissection or rupture. He presents the histories of eight patients who had saccular aneurysms in different regions of the aorta. In six excision of the sac and suture of the aorta were successfully carried out. The surgical technique is described, and drawings illustrate the various types of aneurysms observed in these patients and certain aspects of the operation such as the line of excision and the reconstruction after the excision. The author feels that resection of a saccular aneurysm with preservation of aortic continuity is feasible in all regions of the aorta. It is the procedure of choice in many instances.

Eosinophilic Granuloma of Vulva.—The histories of three patients with eosinophilic granuloma of the vulva are presented. After pointing out that reports of eosinophilic granuloma involving the vulva are rare, the authors show that there is evidence that eosinophilic granuloma of skin and bone, Hand-Schüller-Christian disease, and Letterer-Siwe disease are really different expressions of the same basic disease process. The same histological pattern is present in all except for certain occasional minor variations. Also, in general, each entity shows a tendency to involve certain specific tissues of the body, namely, bone, skin, lung, lymph nodes, spleen, and liver. This is probably an expression of the fact that it is a disease primarily involving the reticuloendothelial system. Numerous examples of cases depicting transitions from one of these entities into another can be found in the literature. The vulvar lesions are often symmetrical and tend to be eczematous and exudative in children but localized yellow brown tumors in adults. Eosinophilic granuloma is not confined to the younger age groups, and the disease process may be of many years' duration. When the disease produces localized swellings in the skin, these masses tend to localize around body orifices, i. e., the mouth, external auditory canal, perianal region, and vulva. The outcome in this disease is difficult to predict, but the disease tends to be shorter and oftener fatal in infants and children and of longer duration in adults. In the severe forms of the disease, treatment usually does not produce cure, but roentgen treatment or local excision may prove temporarily effective.

Urinary Excretion of Corticoids and 17-Ketosteroids Following Operations.—Hardy and associates determined urinary steroid excretion in patients before and after major operations. Excretion of corticoids was ascertained in four patients and of 17-ketosteroids in five patients and was correlated with certain aspects of nitrogen, creatinine, and electrolyte metabolism. Body temperature changes, total eosinophil counts, certain aspects of nutrition, and thyroid activity were also examined. The urinary excretion of corticoids increased in all four patients. The urinary excretion of 17-ketosteroids increased in three of five patients. There was a close inverse correlation between the total eosinophil count and the urinary excretion of corticoids following surgery. The eosinophil count decreased as the corticoid excretion increased. This consistent relationship was not observed between the total eosinophil count and the 17-ketosteroid excretion. In most patients, the postoperative increase in corticoid excretion is accompanied by an increase in the sweat potassium concentration and a decrease in the concentration of sodium and chloride. Following operation, the increases in the urinary excretion of corticoids, nitrogen, and creatinine showed similar time relationships. These increases were largely independent of changes in urinary volume.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

61:149-210 (April) 1953

- Absolute Curability of Cancer of Breast and Statistical Methods of Evaluation in Follow-Up Studies, with Technical Supplement on Statistical Methods of Evaluation. C. E. Hopkin.—p. 149.
- Is Radical Mastectomy Still Preferred Treatment in Operable Breast Cancer? H. E. Peters Jr.—p. 162.
- Chemical Study of Human Endometrium Throughout Menstrual Cycle. C. E. McLennan and P. Koets.—p. 169.
- Pregnancy in Patients with Pelvic Kidney. E. J. Krahulik.—p. 176.
- Fetal Welfare in Placenta Previa. R. P. Neilson and D. R. Neilson, —p. 184.
- *Urinary Stress Incontinence in the Female and Its Correction by Vesico-Urethropexy. G. H. Ward, J. C. Borel and U. E. Anz.—p. 199.
- New Valve for Anesthesia Equipment. A. C. Kirchhof and H. L. Burns. —p. 201.

Vesicourethropexy in Women with Urinary Stress.—Ward and associates say that before any treatment is instituted for the correction of urinary incontinence, the exact cause must be determined. A patient should be studied and treated with the groupings of Te Linde and Brack in mind: group 1, incontinence due to defects in the urinary system, congenital or acquired; group 2, incontinence due to neurological diseases; and group 3, stress incontinence. Stress incontinence occurs most frequently and has the greatest practical importance. The six women in this series all had exertional urinary incontinence. All but one had been delivered of full-term infants. The exertional urinary incontinence had been present from three to six years. None had had previous corrective gynecological procedures. Two of the patients had had pelvic musculature reeducation exercises for a period of three months each. The authors discuss the progress of these six women after their urinary incontinence was corrected by the suprapubic vesicourethral suspension operation of Marshall, Marchetti, and Krantz. The Marchetti modification of placing the sutures to exclude the catheter was used. The Foley catheter was removed immediately in two cases, and in 48 hours in four instances; however, in each instance there was hematuria for two days despite the fact that the sutures were placed to exclude the urethra. The indwelling catheter may cause some trauma in the vesical neck. Each of these women became continent immediately after the operation and remained so to date (3 to 19 months after operation). Before the operation two of the women had to wear vulvar pads because the slightest amount of exertion caused urine to gush from the urethra. The operative procedure is relatively easy.

FOREIGN

Archiv für klinische Chirurgie, Berlin

274:255-346 (No. 4) 1953. **Partial Index**

Regeneration of Gastric Mucosa. G. Levander.—p. 255.

*Healing Processes in Phemister's Method of Subperiosteal Transplantation of Bone Splint: Evaluation of Plastic Procedures in Cases of Pseudarthroses and Retarded Healing of Shaft Fractures of the Long Tubular Bones. U. Ritter.—p. 268.

Speech After Surgical and Prosthetic Plastic Operations in Late Cases of Cleft Palate, with Special Considerations of Staphylopharyngorrhaphy According to R. Trauner. F. A. Doubek.—p. 293.

Carcinoma of Prostate: Critical Evaluation and Prospects of Conservative Cancer Therapy. R. Herbst.—p. 304.

Surgical Treatment of Congenital Cysts of the Mediastinum. P. Ganz. —p. 326.

Healing with Phemister's Method of Subperiosteal Bone Transplantation.—Ritter stresses the surprisingly favorable results obtained with Phemister's method of subperiosteal transplantation of a bone splint in the treatment of pseudarthroses and of slowly healing fractures of the long tubular bones. The fact that the healthy bone above and below the pseudarthrotic portion is only slightly separated from its periosteal trophic connection is regarded by Ritter as decisive evidence for the superiority of Phemister's over other methods. In this method the periosteum is lifted away from the bone only to permit the insertion of the piece of bone. For shaft fractures Phemister usually used bone splints from 7 to 12 cm. in length, and for those near a joint pieces measuring from 4 to 6 cm. Ritter's observations on the healing processes involved in the subperiosteal method of bone splint implantation were made on an extensive clinical material. His detailed descriptions are illustrated by roentgenograms, case histories, and diagrams. One diagram, which illustrates incorporation of Phemister's bone splint, shows marginal stretching of the periosteum and subperiosteal formation of osseous bars or clasps along the borders of the bone splint and the shaft of the bone; ossification of the pseudarthrosis takes place secondarily. Summarizing his observations, the author says that bone regeneration depends on functioning cells. Even though formation of new bone is possible through transformation of the nonspecific mesenchyma, in clinical use in human subjects a bone transplant covered with periosteum has proved superior. Phemister's method of subperiosteal implantation of a bone splint stimulates the growth potential of the healthy and eutrophic periosteum of the bone shaft. This method more than others takes advantage of the local biological conditions and requirements by early trophic attachment of the transplant, by immobilization of the old pseudarthrosis resulting from the formation of periosteal bridges between the transplant and the healthy bone shaft and by secondary ossification of the pseudarthrosis.

Archivio di Tisiologia (Scient. Sect.), Naples

8:87-164 (Feb.) 1953. **Partial Index**

Experimental Study on In Vivo Bactericidal Action of Isoniazid. G. Curci and R. Marzo.—p. 87.

Experimental Studies on Acquired Tropism in Guinea Pigs Vaccinated with BCG. G. Galzerano and A. Scozia.—p. 92.

*Thorn's Reaction After Administration of Isoniazid. R. Marzo.—p. 137.

Thorn's Reaction After Administration of Isoniazid.—Thorn's reaction (decrease of eosinophils) was studied after administration of isoniazid to ascertain whether the drug, in addition to its antibiotic action on the tubercle bacilli, also exerts a stimulating action on the adrenal cortex. About 200 mg. of isoniazid were given to 10 healthy persons and to 10 persons with tuberculosis of various forms and duration who had never had the drug before. Thorn's test gave a negative result in all these persons. This phenomenon was ascribed to the amount of drug administered, which was not sufficient to produce an effective response of the adrenal cortex. Since it was believed that any larger quantity of the drug, even in divided doses, would cause side-effects, the same dose was given for six consecutive days to the same 20 persons and, in addition, to 10 healthy persons and 7 persons with tuberculosis. On the seventh day in all but three patients the number of eosinophils had dropped more than 40% and the urinary ratio between uric acid and creatinine had increased more than 50%. In one healthy person and one with tuberculosis the drop in the number of eosinophils was only 30%, but this might have been due either to some error of method or to a mild functional deficit of the adrenal gland. In the third person in whom there was no decrease in the number of eosinophils, tuberculosis was associated with diabetes mellitus. Thus, although the study was made in a relatively small number of persons, the author, in agreement with other workers, asserts that isoniazid does exert an effective "stress" effect on the cortex of the adrenal gland.

Ärztliche Wochenschrift, Berlin

8:289-312 (March 27) 1953. **Partial Index**

*Pathogenesis of So-Called Fever-Convulsions in Early Childhood. K. Betke and R. Gädeke.—p. 295.

*Aerosolization with Isoniazid as Method of Treatment for Pulmonary Tuberculosis. R. Wagner and H. Busse.—p. 300.

So-Called Fever Convulsions in Early Childhood.—The occurrence of abnormal reactions following smallpox vaccination is reported in seven children between the ages of 1 and 12 years. In three of the seven children a postvaccinal encephalitis was suggested by clinical symptoms, neurological findings, and changes in the cerebrospinal fluid. In three other children, a tentative diagnosis of "fever convulsions" was made because of the absence of abnormal neurological findings and changes in the cerebrospinal fluid and because the temperature was rapidly restored to normal. The seventh patient had intermittent clonic spasm of the extremities, the cerebrospinal fluid was normal, and temperature was gradually restored to normal within five days. Neither the prolonged fever nor the type of spasm was characteristic of fever convulsions, but proof of encephalitis was missing. In an additional 11-month-old patient in whom a clinical diagnosis of bronchopneumonia and meningoencephalitis had been made, necropsy revealed a pronounced cerebral edema with dilatation of vessels in the brain and meninges and dilated perivascular spaces partially filled with protein. In the authors' experience autopsy of young children with a clinical diagnosis of encephalitis reveals cerebral edema oftener than encephalitis. In white mice meningeal and cerebral hyperemia with exudation of plasma into the perivascular spaces resulted from single intramuscular or peritoneal injections of large doses of corticotropin (ACTH). As a result of their clinical and experimental experiences the authors consider an increase in the volume of the brain caused by hyperemia and edema to be the morphological substrate of the so-called fever convulsions in early childhood. The cause of these cerebral changes is the nonspecific, acute adaptation of the organism to an acute infection. The convulsions may depend on predisposing factors such as unfavorable environment, age (predominantly the second to the fourth year of life), or constitutional lability of vascular reactions. "Initial infectious convulsions" seems to be the correct term for these attacks. They are a symptom that does not offer any explanation with respect to pathogenesis and is of no value with respect to prognosis. On the basis of pathological findings, the authors have considered the possiblity that such convulsions are due to a permanent impairment resulting from destruction of ganglion cells.

Isoniazid Aerosolization for Pulmonary Tuberculosis.—Forty-nine patients with open pulmonary tuberculosis were treated with 25 or more inhalations of aerosol isoniazid. Of the 49 patients, 45 received one inhalation daily and 4 received two inhalations daily of 2.5 cc. of a 2% or 2 cc. of a 5% solution of a proprietary preparation of isoniazid (Neoteben) and of 2 cc. of an equivalent 2.5% solution of another proprietary preparation of isoniazid (Rimifon). The duration of the inhalation was about 15 minutes. The total number of inhalations varied from 25 to 98, with an average of 50. In all the patients previous treatment with *p*-aminosalicylic acid or amithiozone had failed. Eight of the 49 patients were considerably improved roentgenologically by the inhalation treatments and so were 21 who had received isoniazid both orally and by inhalation; 2 of the remaining patients were moderately improved, 17 were unchanged, and 1 became worse. The inhalations were very well tolerated. Nonspecific pharyngitis and laryngitis were not observed. Treatment had to be discontinued in three patients because of paresthesia in the extremities, tinnitus aurium, or increased serum bilirubin (2.56 mg. per 100 cc.). Better results were obtained with isoniazid aerosol therapy than with an aerosol preparation of water soluble thiosemicarbazone (Solvoteben). As a result of their experience, the authors recommend isoniazid aerosolization as an adjuvant in order to prevent increased resistance of Mycobacterium tuberculosis to isoniazid. Treatment with isoniazid orally and by inhalation alternating with amithiozone or *p*-aminosalicylic acid orally combined with thiosemicarbazone aerosol may be given a trial. Aerosol treatment should be given a trial not only in patients in whom exhaustive previous treatment with other drugs has failed but also in patients in whom stabilization could not be obtained by pneumothorax and in whom the bronchi are patent. Aerosolization does not seem to be promising with respect to the local effect in patients with residual cavities after plastic operations or if cavities are present in parts of the lungs to which the aerosol has no access as a result of the collapse.

Brain, London

76:1-148 (March) 1953

Thoughts Upon Equation of Mind with Brain. F. M. R. Walshe.—p. 1.
Tactile Thought, with Special Reference to the Blind. M. Critchley.—p. 19.
Non-Infective Intracranial Venous Thrombosis. H. J. M. Barnett and H. H. Hyland.—p. 36.
Study of Thalamic and Cortical Rhythms in Petit Mal. D. Williams.—p. 50.
Pathology of Spinal Cord Lesions and Their Relation to Clinical Features in Protrusion of Cervical Intervertebral Discs: (Report of Four Cases). W. G. P. Mair and R. Druckman.—p. 70.
Value of Electro-Encephalogram in Diagnosis of Intracranial Tumours. S. Renfrew, J. H. Cameron and I. L. Haggar.—p. 92.
Anatomical Considerations in Pathology of Stenosis of Cerebral Aqueduct. D. H. M. Woollam and J. W. Millen.—p. 104.
Neurological Features of Tsutsugamushi Fever, with Special Reference to Deafness. K. B. Noad and W. Haymaker.—p. 113.

British Journal of Dermatology, London

65:121-156 (April) 1953

Clinical Study of Leukonychia. J. C. Mitchell.—p. 121.
Investigation into Value of d,l-Alpha—Tocopheryl Acetate (Vitamin E) in Treatment of Gravitational Ulcers. M. Lee.—p. 131.
Kaposi's Varicelliform Eruption: Direct Transmission to a Nurse. J. R. Simpson.—p. 139.

British Journal of Ophthalmology, London

37:193-256 (April) 1953. Partial Index

Mechanism of Corneal Vascularization. N. Ashton and C. Cook.—p. 193.
Observations on Growth of Blood Vessels into Cornea: Application of New Experimental Technique. M. Langham.—p. 210.
Technique of Lamellar Scleral Resection. H. B. Stallard.—p. 223.
Protein Studies on Human Vitreous Body. B. Cagianut and C. Wunderly.—p. 229.
*Mercurialentis. D. Hunter and A. Lister.—p. 234.
Treatment of Established Symblepharon with Split Skin Homograft. G. J. Romanes.—p. 236.
Ocular Findings in Haemochromatosis. J. R. Hudson.—p. 242.
Sarcoidosis of the Eye. A. G. Cross.—p. 247.

Mercurialentis.—Hunter and Lister report on a case of mercurialentis (a colored reflex from the anterior capsule of the lens, believed to be due to a deposit of mercury) in a man, aged 58, who had been a thermometer maker for 35 years. In 1935 the bulb of a long pipe thermometer containing 2 oz (60 gm.) of mercury had burst in the man's hand, and some of the mercury had been deposited under the skin. Most of the mercury was removed at the time of the injury, but during the following week he developed ataxia and nystagmus. For two years his hand never healed completely. In 1937, a grey scarred mass was excised from the palm of the right hand. During the following two months, symptoms of mercury poisoning appeared, and he was never well from this time onward. Since 1947 he had complained of a staggering gait, of feeling unwell, and of continuous headache. Exposure to mercury ceased in March, 1948. When examined in 1951 he had vertigo, fine nystagmus, and paresis of the right external rectus muscle. On examination with the slitlamp, the lens showed a brownish, sharply defined anterior band. Examination with high power showed it to be very finely granular and to have an iridescent sheen. The authors cite several reports from the literature that indicate that mercurialentis is a common sign of prolonged exposure to mercury; it may be the only sign and once formed is permanent. Although the condition is usually of industrial origin, it can also be caused by prolonged use of yellow mercury ointment on the skin and even on the lid margins.

British Medical Journal, London

1:743-794 (April 4) 1953

The Surgeon and Ischaemia. J. Learmonth.—p. 743.
Health of Premature Children from Birth to Four Years. J. W. B. Douglas and C. Mogford.—p. 748.
Report of Tuberculin Survey in the Rhondda Fach. T. F. Jarman.—p. 754.
Chloramphenicol Treatment of the Newborn. R. M. Calman and J. Murray.—p. 759.
Summer Hay-Fever and Asthma Treated with Antihistaminic Drugs. A. W. Frankland and R. H. Gorrill.—p. 761.
Pylephlebitis and Septicaemia Treated with Aureomycin. F. G. Marson and M. J. Meynell F. Welsh.—p. 764.
Congenital Obstruction of Small Intestine in Two Premature Infants. W. P. Sweetnam, F. W. Shepherd and E. F. Murphy.—p. 765.
Succinylmonocholine. H. Lehmann and E. Silk.—p. 767.

1:795-846 (April 11) 1953

Nature and Place of Thinking in Medicine. F. Bartlett.—p. 795.
Relationship Between Cancer of Stomach and ABO Blood Groups. I. Aird, H. H. Bentall and J. A. F. Roberts.—p. 799.
Symptomatic Disturbance After Single Therapeutic Dose of X Rays: Its Relationship to General Radiation Syndrome. W. M. C. Brown.—p. 802.
*Oral N,N'-Dibenzylethylenediamine Penicillin in Children. I. A. B. Cathie and J. C. W. MacFarlane.—p. 805.
Combined Oral Penicillin and Sulphadimidine in Acute Middle-Ear Infections. D. Wheatley.—p. 806.
The Q-T Interval in Myocardial Infarction. R. B. Khambatta.—p. 808.
Chloroquine in Treatment of Amoebic Liver Abscess. J. C. Patel.—p. 811.
*"Dangerous Recipitents" of Transfusion: Incompatible Reactions after Transfusion of Group O Rh-Negative Blood. G. H. Tovey, C. P. Warren and E. E. Wood.—p. 813.
Sensitivity of Autonomic Ganglia to Hexamethonium in Hypertension. J. Conway.—p. 814.
Terramycin in Treatment of Acute Otitis Media in Children. S. Mawson, J. D. Gray and A. B. Hewlett.—p. 817.

Oral Penicillin in Children.—A new penicillin salt, Penidural (N, N'-dibenzylethylenediamine penicillin) was given orally in doses of 300,000 units to 101 children, and the blood levels of the drug were determined three to four hours after its administration. Penidural was reliably absorbed in all patients irrespective of size and weight when a standard dose of 300,000 units was used. No attempt was made to work out a graded system of dosage according to body weight, but it is possible that in the smaller children therapeutic blood levels might be obtained with smaller amounts. In acute infections blood levels obtained during the first six hours with oral administration alone cannot be regarded as adequate, and two patients with osteomyelitis and three with pneumonia who were given Penidural were also given a single intramuscular injection of a large amount of crystalline penicillin to augment the blood level during this period. In these patients the results obtained were as good as would have been expected with intramuscular administration of penicillin. A rational scheme of treatment of acute infection appears to be an initial intramuscular injection of 600,000 units of Penidural and 100,000 units of crystalline penicillin, with 300,000 units of Penidural orally, the treatment continuing thereafter only with Penidural orally. Such a scheme will produce reliable therapeutic penicillin levels and should be adequate to treat infections due to penicillin-sensitive organisms.

Transfusion Reactions.—Incompatible reactions after transfusion of group O Rh-negative blood in a 26-year-old woman and in a 42-year-old woman are reported. The first patient received the transfusion because of hemorrhage during cesarean section for delivery of her third infant; the transfused Rh-negative cells had undergone hemolysis, resulting in a severe chill followed by jaundice and oliguria for 48 hours. Laboratory investigation showed the patient's blood to be group

O Rh-positive, Rh genotype cDE/cDE; immune antibodies, type anti-e + anti-C were demonstrable in the patient's serum to a titer of 256 with homozygous e-positive red cells (Rh-negative cells, cde/cde) suspended in sodium chloride solution and in albumin. The titer against heterozygous cells (R_1R_2, CDe/cDE) was 64. The second patient received repeated blood transfusions for menorrhagia; one transfusion of group O Rh-negative blood was not followed by serious reaction, but a second transfusion nine days later caused a chill followed by jaundice, hemoglobinuria, and oliguria for the next seven days. Serological investigation demonstrated the patient's blood to be group O Rh-positive, Rh genotype CDe-CDe. Immune antibodies of the type anti-c + anti-E were demonstrable in the post-transfusion sample of her blood to a titer of 32 in sodium chloride solution and 256 in albumin against homozygous c-positive cells (Rh-negative cells, cde/cde), and 2 to 4 in sodium chloride solution and 16 to 32 in albumin against heterozygous c-positive cells (R_1r, CDe/cde). The patient's post-transfusion blood sample contained no Rh-negative cells, thus confirming that the blood transfused was incompatible. These two cases illustrate the particular risk that recipients of blood transfusions incur if they are Rh-positive, since the immune antibodies they have developed may well be of the type anti-c or anti-e, and thus active against Rh-negative corpuscles (cde/cde). In some instances incompatability from antibodies can be detected in vitro only by complicated methods of direct matching, such as an indirect antiglobulin technique or a titration procedure using bovine albumin. In neither of the author's two patients, although their histories indicated the need, had such serologic investigations been made before the transfusion accidents. The case of the second patient further illustrates that, although a patient may be transfused without serious reaction with blood of a certain ABO and Rh group, this does not mean that a later transfusion of blood of the same ABO and Rh group will be similarly unaccompanied by incompatible reaction. It is important to bear in mind that the transfusion of blood can result in formation of dangerous antibodies, and any further blood for transfusion should invariably be matched on a freshly taken sample of the recipient's serum if more than 48 hours have elapsed since a previous transfusion.

Clinica, Bologna

14:83-160 (No. 2) 1953. **Partial Index**

Nonparasitic Cysts of Liver. E. Polli.—p. 83.
C Glucoside of Digitalis Lanata in Acute Left Heart Decompensation. A. Parodi and C. Romagnoli.—p. 100.
Determination of Cholesterol and Substances with Estrogen-Like Action in Specimens of Breast Cancer. C. Menini and A. Zoli.—p. 111.
*Postoperative Study of Thrombocytes with Reference to Thromboembolic Complications. P. Serra and A. Parma.—p. 124.

Postoperative Study of Thrombocytes.—A postoperative study was made of the thrombocytes of 106 patients who, because of age and/or the type of disease that had justified the intervention, had a tendency to thromboembolic complications. The preoperative count had revealed an average of from 300,000 to 350,000 thrombocytes per cubic millimeter, varying according to the patient's disease and general condition. The first postoperative count was made 24 hours after the intervention with the patient fasting, and the others were taken every 24 to 48 hours thereafter. Seventy-six patients had an uneventful postoperative course, and 59 of them (77%) had thrombocytosis. This, as a rule, became evident 24 to 48 hours after the intervention and usually lasted less than four days. Its initial phase and duration were not correlated with the patient's disease and the type of operation. Nine of these 76 patients were not considered because they had an increase of less than 50,000 thrombocytes. In the other eight patients the number of thrombocytes remained unchanged or decreased slightly, but these findings were ascribed to some mechanical error in the method used. A pronounced thrombocytosis (two to three times greater than the preoperative values) was found in nine patients whose postoperative course was complicated by infection. When the patient began to recover, the number of thrombocytes simultaneously began to return to normal. The postoperative course of 19 patients was complicated by phlebothrombosis of the deep veins of the leg, severe thrombophlebitis, and pulmonary embolism. All but one of these revealed a thrombocytopenia that had appeared before or at the onset of the clinical signs of the thrombotic process. This thrombocytopenia occurred in various ways and lasted several days. The number of thrombocytes began to increase when the patient began to recover either spontaneously or with ethyl biscoumacetate (Tromexan) and heparin therapy. In two patients whose postoperative course was complicated by infection and thrombosis concurrently there was no change in the number of thrombocytes. This suggests that the effect of the two entities on the thrombocytes superimposed and annulled each other. Since a more or less pronounced thrombocytopenia was a constant phenomenon in patients whose postoperative course was complicated by a thromboembolic process, a postoperative study of the patient's thrombocytes may be a valuable adjuvant in the early diagnosis of these complications. It may prove especially valuable when these processes develop in areas that are clinically difficult to explore, such as the pelvic and femoral vessels and the chambers of the heart.

Deutsche medizinische Wochenschrift, Stuttgart

78:451-502 (April 3) 1953. **Partial Index**

Surgical Treatment of Pyloric Ulcer: Gastroenterostomy with "Conservative" Exclusion of Pylorus in Ulcers at the Pylorus Where Resection is not Feasible or Difficult. E. Borchers.—p. 451.
Progress in Surgical Treatment of Esophagus. H. Krauss.—p. 455.
Treatment of Bronchiectasis by Resection. E. Derra and F. Koss.—p. 457.
Changes in Knowledge of Pathogenesis and Treatment of Acute Suppurative Osteomyelitis. T. Naegeli.—p. 462.
*Anemia Associated with Diaphragmatic Hernia. F. Kümmerle.—p. 487.

Anemia Associated with Diaphragmatic Hernia.—The occurrence of hypochromic anemia in two women, aged 50 and 61 years, with diaphragmatic hernia is reported. In the younger patient the anemia was mild and occult blood was demonstrated in the feces; the older patient had severe anemia (with a hemoglobin level 26% of normal) and large amounts of blood were found in the feces. In the first patient the diaphragmatic hernia was acquired, there was no hernial sac, and the condition probably was due to a sudden increase of the internal abdominal pressure. The second patient had a hiatus hernia of type 2 according to Akerlund's classification, with a shortened esophagus that opened into the epiphrenic sac of the stomach. On surgical intervention in both patients an ulcer was detected in the cardial portion of the stomach at the level of the hernial aperture; it had not been demonstrated roentgenologically before the operation. This ulcer was the cause of the anemia. Pathogenesis, symptomatology, and diagnosis are briefly discussed. The severe anemia in the older patient improved considerably following preoperative treatment with large doses of iron and blood transfusions. Surgical treatment by the transthoracic approach was successfully carried out in both patients and should be practiced in all cases of diaphragmatic hernia associated with anemia, provided there are no clear contraindications. Because it restores anatomic conditions, it is the method of choice in traumatic diaphragmatic hernia. Phrenicotomy with or without thoracotomy may be performed for hiatus hernia with shortened esophagus; the dilated hiatus of the diaphragm may be narrowed by suturing the diaphragm to the prevertebral fascia and fixing the edges of the narrowed hiatus at the stomach at the level of the cardia. Because of the frequent association of anemia with diaphragmatic hernia, the presence of the latter always should be considered in cases of anemia of uncertain origin.

Gazzetta Medica Italiana, Milan

112:65-96 (March) 1953. **Partial Index**

Action of "Formo-cibazol" Combined with Vioform on Intestinal Amebiasis: Clinical and Experimental Studies. F. Andrini and S. Arcanà.—p. 65.
Pernicious Anemia Associated with Cirrhosis of Liver: One Case. G. C. Angela and M. Fazio.—p. 68.
*Intra-Arterial Therapy of Endarteritis Obliterans. R. Marinoni.—p. 77.

Intra-Arterial Injection of Antazoline in Endarteritis Obliterans.—Ten patients with thromboangiitis obliterans of varying duration were treated with intra-arterial injections of 0.1 gm. of antazoline (Antistine) hydrochloride combined with 10 cc. of a 1% procaine hydrochloride solution. The injection was given slowly in Scarpa's triangle and immediately thereafter a band was tied around the thigh for five minutes. A total of from 3 to 12 injections proved sufficient to bring about an improvement in all but one patient. In this patient, a 43-year-old man, thromboangiitis was associated with lesions secondary to frostbite, and after seven injections his condition was still unchanged. All the other patients reported a marked diminution of nocturnal pains, a 9 to 10 times greater walking endurance before onset of pains in the extremities, a diffuse sensation of warmth in the entire leg with profuse sweating of the foot for from one-half to two hours after the injection, and at the time of the injection an unpleasant, warm, burning sensation radiating to the great toe. This sensation was not felt by the patient in whom the therapy failed. There was never any side-effect, and only three patients were hospitalized for the treatment. The improvement is still present in all the nine patients 40 days to 8 months after the end of the treatment. Although the author cannot as yet explain the mechanism of action of antazoline in these patients, he suggests that the presence of the histamine-antagonizing agent in an optimum concentration in the altered vascular tissue is effective in inactivating the histamine produced by the tissue and bringing about, even if only temporarily, a balance.

Journal of Irish Medical Association, Dublin

32:95-132 (April) 1953

The Case for Gastrectomy. J. Hurley.—p. 95.
Unusual Lesions in Right Iliac Fossa. P. C. Bresnihan and K. Jones. —p. 106.
*Femoral Nerve Lesion in Haemophilia. J. B. Lyons.—p. 110.
Use of Radio-Active Isotopes in Radiotherapy. D. J. Riordan.—p. 112.
Cancer: Preventive Approach. H. V. Connolly.—p. 115.
Ménière's Syndrome and Simulating Conditions. F. A. MacLaughlin. —p. 116.

Femoral Nerve Lesion in Hemophilia.—Certain complications of hemophilia, such as hemarthrosis, occur so frequently that absence of hemarthrosis in a hemophilic patient surviving into adult life casts doubt on the diagnosis. Involvement of the nervous system, however, is rare, as is proved by a review of the literature. Lyons describes a youth, aged 19, who had been hospitalized on many occasions for bleeding episodes. One maternal uncle died of hemorrhage when 12 years old. Another was "subject to bleeding." His brother was a bleeder from birth and died from hemorrhage at the age of 3 years. The youth's complaint was of pain in the left hip, and pain and swelling in the left groin. He also complained of tingling and numbness on the lateral side of the left thigh. His left hip was held in flexion and a large hard mass was palpable just above the inguinal ligament. He was unable to extend his left knee, and the quadriceps muscles were flaccid and wasted. The left knee jerk was absent. There was extensive sensory loss for pin prick and light touch in the area supplied by the femoral nerve and the lateral cutaneous nerve of the thigh. Aspiration of the hematoma deep in the psoas muscle was done a month later, because its size had shown no change. The pain in the iliac fossa was somewhat relieved after this, but no change was noticeable in the function of the involved nerves until about 7 months later. Then a transient disturbance in the radial nerve developed. In quoting from a summary report on nerve lesions in hemophilia, the author says that the femoral nerve was affected in 7 of 11 patients with involvement of the peripheral nerves. Diagnosis should present no difficulty provided the possibility of a peripheral nerve lesion is considered; however, on account of psoas spasm and pain referred to the hip joint, it may be mistaken for hemarthrosis in this joint. Further examination will reveal the inability to extend the knee, the loss of the knee-jerk, and extensive sensory loss. A mass is always present in the iliac fossa, pointing to the cause of the paralysis, a large hematoma in the psoas muscle. The prognosis is on the whole good, with the majority of patients recovering completely.

Journal Obst. & Gynaec. Brit. Empire, Manchester

60:141-300 (April) 1953. **Partial Index**

Maternal Placental Blood Flow in Normotensive and Hypertensive Women. J. C. McClure Browne and N. Veall.—p. 141.
Placental Polysaccharide and Aetiology of Toxaemia of Pregnancy. M. Kaku.—p. 148.
*Glomerular Filtration Rate and Renal Blood Flow in Hypertensive Toxaemia of Pregnancy. H. Bucht and L. Werkö.—p. 157.
Study of Renal Tract in Carcinoma of Cervix. R. Dearing.—p. 165.
Blood-Pressure in Toxaemia of Pregnancy: I. Spontaneous Diurnal Variability. L. Werkö and S. Brody.—p. 180.
Id.: II. Influence of Hypotensive Drugs. L. Werkö and S. Brody.—p. 186.
Exchange of Sodium Between Plasma and Extracellular Compartments in Pregnant Women as Determined by Na^{24} Tracer Methods. L. W. Cox and T. A. Chalmers.—p. 195.
Transfer of Sodium to Placental Blood During Third Stage of Labour Determined by Na^{24} Tracer Methods. L. W. Cox and T. A. Chalmers. —p. 226.
Giant Cell Tumour of Bone in Pseudomucinous Cystadenoma of Ovary. H. F. Bettinger.—p. 230.
Intra-Uterine Growth of Foetal Head after 36th Week of Pregnancy. D. Crichton.—p. 233.
Vaginal Delivery After Caesarean Section. R. F. Lawrence.—p. 237.
Composition of Liquor Amnii in Haemolytic Disease of Newborn. D. C. A. Bevis.—p. 244.
Masculinization of Ovarian Origin: Report of Case with Virilization Developing During Pregnancy. W. S. Alexander and O. D. Beresford. —p. 252.
Crush Fracture of Dorsal Spine in Eclampsia. O. V. Jones.—p. 259.

Glomerular Filtration and Renal Blood Flow in Toxemia of Pregnancy.—According to Bucht and Werkö, the kidney has been thought to play an important part in the development of toxemia of pregnancy, but a change in renal function pathognomonic for toxemia of pregnancy has not been demonstrated. Several investigators using clearance techniques studied the changes in renal function during toxemia. The studies reported here also concerned the clearance techniques and compare the values found in normal pregnancy with those found during toxemia of pregnancy. The renal clearance of inulin and *p*-aminohippuric acid was studied in 28 cases of toxemia of pregnancy. In all cases the study was repeated once or twice after termination of pregnancy, up to two years after delivery. The authors found that inulin clearance is the best measure of the glomerular filtration rate and the *p*-aminohippuric acid clearance of the renal plasma flow in toxemia of pregnancy. Inulin clearance is lower than normal in toxemia of pregnancy, but it undergoes a rapid increase after delivery. This speaks against organic changes as a cause of decreased filtration rate. Other possible causes are discussed. The *p*-aminohippuric acid clearance is also lower than normal in toxemia of pregnancy. The *p*-aminohippuric acid clearance does not increase to normal immediately after delivery but increases slowly and in some cases not at all. In the latter cases arterial hypertension does not necessarily develop within the time of observation (two years). The filtration fraction did not show typical changes in toxemia of pregnancy. There was no correlation between the extent of renal changes and the death of the fetus.

Journal of Tropical Medicine and Hygiene, London

56:73-98 (April) 1953. **Partial Index**

Filiariasis in Tropical Asia. D. L. Augustine.—p. 75.
Dengue Epidemics in Japan, 1942-1945. S. Hotta.—p. 83.

Klinische Wochenschrift, Berlin

31:297-344 (April 1) 1953. **Partial Index**

Endogenous Creatinine Clearance in Persons Without Renal Disease. P. Doering, H. Schroeter, W. Schubert and M. Schwab.—p. 301.
Treatment of Pemphigus Vulgaris with Heparin. M. Matthes.—p. 305.
Action of Insulin Administered in Form of Aerosol. B. Knick and J. Wehr.—p. 310.
*Influence of Vitamin B_{12} on Levulose Content of Blood. K. Stuhlfauth. —p. 312.
Electroshock and Sympathetic Integration. S. Wieser, R. Fetzner and D. Jordan.—p. 314.
Serum Protein Values in Patients with Carcinoma. H. Esser, F. Heinzler and H. Wild.—p. 321.

Influence of Vitamin B_{12} or Levulose Content of Blood.—Steinitz reported in 1937 that the increased blood levulose concentration that results from the administration of levulose can be reduced by administration of liver extract. Stuhlfauth noted that the same effect could be obtained when, instead of liver extract, he administered from 15 to 30 μg of vitamin B_{12} intramuscularly after levulose had been given either intravenously or by intraduodenal drip. Stuhlfauth was interested in ascertaining whether this reduction in the blood levulose content, which he had obtained in 30 subjects, including some with hepatic disorders and with obesity, would also influence other constituents of the carbohydrate metabolism. For this purpose levulose was introduced into the duodenum of 10 fasting persons. When 1 liter of 5% levulose solution was given hourly, the blood levulose concentration was found to be between 30 and 50 mg. per 100 cc. after about 120 minutes and remained at this level when the levulose administration was continued at the same rate. The dextrose content, however, was found to decrease by from 10 to 20 mg. per 100 cc. The lactic acid did not noticeably increase with this relatively slow administration of levulose. The pyroracemic acid was usually only slightly increased (0.5 mg. per 100 cc.), and the inorganic phosphate decreased slightly (2 mg. per 100 cc.). If, after the levulose content has reached its maximum, that is, two hours after onset of infusion, the patient is given 30 μg of vitamin B_{12}, the levulose nearly always decreases by from 10 to 25 mg. per 100 cc. The blood dextrose then increases slightly, without reaching the former level. Lactic acid usually increases noticeably, sometimes to twice its original value, one hour after injection of vitamin B_{12}. The pyroracemic acid decreases following a slight temporary increase. The inorganic phosphate one hour following the injection of vitamin B_{12} shows a renewed increase, which is followed by a temporary decrease. The reduction in the blood levulose content occurs only after injection of vitamin B_{12} or of liver extracts. Cobalt, folic acid, and adrenal cortex extract did not have this effect on the levulose content of the blood. Administration of 30 μg of vitamin B_{12} to eight fasting healthy persons who had not been given levulose likewise showed a slight decrease in the general function of reduction. In five patients with diabetes no uniform changes could be observed. The author concludes that the changes appearing simultaneously in the serum contents of dextrose, pyroracemic acid, and inorganic phosphate indicate that vitamin B_{12} induces increased utilization of levulose.

Lancet, London

1:657-704 (April 4) 1953

*Synergistic Action of Liquorice and Cortisone in Addison's and Simmonds's Disease. J. G. G. Borst, S. P. ten Holt, L. A. de Vries and J. A. Molhuysen.—p. 657.
*Effects of Liquorice and its Derivatives on Salt and Water Metabolism. W. I. Card, W. Mitchell, J. A. Strong and others.—p. 663.
Trichomonas Vaginalis in the Male: Experimental Infection of Volunteers. F. Lanceley and M. G. McEntegart.—p. 668.
Cuirass Respirators: Their Design and Construction. J. T. Scales, A. B. K. Wilson, T. H. Sellors and others.—p. 671.
Modified Both Respirator. R. E. Smith.—p. 674.
P-Q Variation in Influenza Viruses. A. Isaacs.—p. 676.
Disorders of Motility of Small Bowel. I. W. MacPhee.—p. 678.
Whale Finger and Seal Finger: Their Relation to Erysipeloid. F. K. M. Hillenbrand.—p. 680.

1:705-754 (April 11) 1953

Professionalism in Heath Service. L. Farrer-Brown.—p. 705.
Immediate Primary Repair of Skin Defects with Local Flaps. C. R. McLaughlin.—p. 710.
Polycythaemia and Erythraemia Treated with Para-Hydroxypropiophenone. E. Haynal, F. Gráf and E. Matsch.—p. 714.
Mechanism and Treatment of Spinal-Cord Disorders Associated with Cervical Spondylosis. A. R. Taylor.—p. 717.
Renal Excretion of Phenolsulphonphthalein as Aid to Diagnosis of Previous Hypertension. J. Vallance-Owen.—p. 721.
New Respirator. C. Bang.—p. 723.
Biological Activity of Triiodothyronine. E. G. Tomich and E. A. Woollett.—p. 726.

Licorice and Cortisone in Addison's and Simmonds' Disease.—Some of the adrenal cortical hormones influence the renal function in that they promote retention of sodium, chloride, and water but cause greater excretion of potassium. When administration of these hormones is stopped, there is a "rebound"; potassium is retained and extracellular fluid is excreted in excess. Desoxycorticosterone possesses this property to a greater degree than the glycocorticoids, cortisone and hydrocortisone. It was demonstrated in 1950 that oral administration of extract of licorice or of the glycyrrhizinic acid obtained from it, has the same effect as administration of desoxycorticosterone. Borst and associates of Amsterdam discuss the response to licorice in patients with Addison's disease and in Simmonds'-Sheehan disease, citing case histories. They found that the desoxycorticosterone-like effect of licorice, which is always seen in persons with intact suprarenal glands, was absent in three patients with Addison's disease. One of the three had suffered from suprarenal insufficiency for only a short time and had at first reacted well to licorice. In these three patients administration of 2.5 mg. of cortisone daily, divided into eight doses, partially restored the effect of licorice on the mineral metabolism. A dose of 10 mg. of cortisone restored the effect fully. A patient with Simmonds'-Sheehan disease reacted favorably to licorice. A good response followed treatment either with licorice and cortisone or with licorice and corticotropin. Two of the patients with Addison's disease who were treated with licorice and corticotropin simultaneously failed to respond. It is probable that patients with Addison's disease who respond favorably to licorice still have remnants of functioning suprarenal tissue, but there is as yet no direct evidence of this. The authors say that their observations throw no light on why the effect of licorice in normal subjects varies so much. The intensity of the response is not determined by the amount of glycocorticoids produced by the suprarenal glands unless this falls below a certain level. At the moment the most attractive hypothesis is that the "weak reaction" of certain subjects is merely the consequence of a very active counteracting homeostatic mechanism.

Effects of Licorice on Salt and Water Metabolism.—Following reports that in one case Addison's disease was controlled with licorice and in another case with salts of glycyrrhizinic acid, a component of licorice, Card and associates investigated these effects and examined certain components of licorice for desoxycorticosterone-like activity. They found that block juice, a preparation of crude licorice, is capable of producing water, sodium, and chloride retention in normal persons. Glycyrrhetinic acid, which occurs in licorice in the form of its glucuronide (glycyrrhizinic acid), reproduced the effects of crude licorice in normal subjects. Glycyrrhetinic acid, when given to one patient with Addison's disease, had effects on weight and electrolytes similar to those found after the administration of desoxycorticosterone and cortisone. In contrast to desoxycorticosterone, crude licorice and glycyrrhetinic acid did not prolong the survival of rats whose adrenals had been removed.

Medical Journal of Australia, Sydney

1:357-392 (March 14) 1953

One Thousand Complete Pelvimetries: Radiological and Obstetrical Analysis. C. Macdonald and S. Thomas.—p. 357.
*Treatment of Tetanus. E. G. Saint, R. A. Joske and J. L. Stubbe.—p. 361.
Zinc Sulphate Turbidity Test in Differential Diagnosis of Jaundice. S. Weiden.—p. 364.
Temporal Lobe Tumours. J. Game.—p. 366.
Medical Selection of Migrants from Displaced Person Population of Post-War Europe. I. R. Mackay.—p. 369.
Some Observations on Use of "Brevidil E," New Muscular Relaxant, in Electro-Convulsive Therapy and Comparison with "Scoline." V. T. Stephen.—p. 372.
Bilateral Congenital Anterior Staphyloma Treated by Keratoplasty. H. C. Beckett.—p. 372.
Neuroblastoma of Naso-Pharynx. G. K. Vincent.—p. 374.

Treatment of Tetanus.—In past decades the treatment of tetanus was often disappointing, because even heroic doses of antitoxin may be without value once the toxin is fixed in central nervous tissue and florid symptoms have developed. This paper reports observations on six patients with tetanus, four of whom recovered. The authors are convinced that in all but the mildest cases treatment of tetanus should consist of an integrated therapeutic attack designed to keep the patient alive while the effects of the toxin wear off. The neutralization of toxin, suppression of exhausting spasms, the prevention of bronchopneumonia, and the maintenance of an optimal state of nutrition are of vital importance. The following measures should be adopted: 1. At least 250,000 units of antitoxin should be given on the patient's admission to hospital, half of this by the intravenous route. 2. Early tracheotomy should be performed as a routine measure. 3. Every six hours 500,000 units of penicillin and 0.5 gm. of streptomycin should be given. 4. If a wound is present, early wide excision should be carried out. 5. Continuous intragastric feeding should be instituted. 6. Continuous administration of gallamine (Flaxedil) triethiodide should be carried out by intravenous drip. 7. Minimal sedation with short-acting barbiturates, such as thiopental (Pentothal), should be used. In severer cases it may be necessary to keep the tracheotomy tube in place for two or more weeks and to continue with the intravenous use of gallamine triethiodide for a similar period.

Nordisk Medicin, Stockholm

49:387-420 (March 13) 1953. Partial Index

Chylothorax. R. Dybkaer.—p. 387.
Two New Cases of Chylothorax. R. Gordin.—p. 390.
Anticoagulants in Cardiac Infarction. R. Gordin.—p. 393.
Clinical Application of Nor-Epinephrine. O. Norlander.—p. 395.
Allen's Test in Arterial Insufficiency: Clinical Evaluation. O. Selvaag.—p. 399.
Follow-Up of Patients with Varicose Veins Treated by Mosckowicz Operation. L. Zachariae.—p. 400.
*Effect of Probenecid on Penicillin Content of Serum After Oral Administration of Penicillin. A. R. Frisk, N. Diding and G. Wallmark.—p. 402.
Subacute Bacterial Endocarditis-Mycotic Aneurysm in Popliteal Artery. J. T. Heggebø—p. 405.
Dicumarol in Recurrent Thrombophlebitis. B. Swedberg.—p. 408.
Prostigmine in Acute Porphyria. H. Öigaard and B. E. Roos.—p. 411.

Effect of Probenecid on Penicillin Content of Serum After Oral Administration.—Frisk and his associates report that the simultaneous administration of probenecid and penicillin noticeably increases the serum concentration of penicillin compared with the concentration reached by corresponding amounts of penicillin alone. With dosage of from 0.25 to 1 gm. of probenecid there is a linear relationship between the amount of probenecid given and the serum penicillin level attained. With the aid of probenecid, oral penicillin therapy can be carried out with smaller penicillin doses given at longer intervals. A dosage scheme of 500,000 units penicillin together with 1 gm. of probenecid every eight hours gives a minimum penicillin level in the serum of 0.1 unit per milliliter. The toxicty of probenecid is low and the substance is well tolerated. The present method of administering penicillin will probably largely be replaced by oral penicilln-probenecid therapy. An oral dose of 500,000 units penicillin with 1 gm. of probenecid every twelve hours may be considered sufficient for the treatment of most infectious diseases due to penicillin-sensitive bacteria. The combination of penicillin and probenecid in one tablet simplifies administration and does not affect the resorption of the substances. Probenecid will also be valuable in the treatment of infections that respond only to massive penicillin therapy; the authors' experiences in treatment of subacute bacterial endocarditis show the effectiveness of the combination of massive intramuscular doses of penicillin and probenecid.

49:459-492 (March 27) 1953. Partial Index

Isoniazid in Tuberculous Meningitis. L. Silverstolpe and G. Örndahl.—p. 459.
Refsum's Disease. L. Kjellson.—p. 460.
*Experiments with Small Doses of Succinylcholine Iodide in Electroshock Therapy. G. Holmberg, G. Hård and N. Ramqvist.—p. 463.
Excretion of 17-Ketosteroids in Alcoholism. S. Mårtens.—p. 466.
Renal Function in Diabetes Mellitus. H. Bucht, L. Werkö and J. Ek.—p. 468.
Isoniazid in Tuberculous Meningitis: Case Report. L. Silverstolpe and G. Örndahl.—p. 470.

Use of Succinylcholine Iodide in Electroshock Therapy.—Experimental and clinical studies were carried out to determine a practical standard dose of the muscle relaxant, succinylcholine iodide, for use in electroshock treatment. Electromyographic recording of the convulsions after different doses of this agent showed 0.25 mg. per kilogram of body weight to be suitable for men and 0.15 mg. per kilogram for women. Succinylcholine iodide was combined with 0.15 gm. or in exceptional cases with 0.20 gm. of Evipan (N-methylcyclohexenyl-methyl barbituric acid) and injected intravenously over a period of one minute while oxygen was insufflated. The electroshock was given about 20 seconds after the end of the injection. Clinical tests in 74 patients, 32 men and 42 women, in 339 electroshock treatments showed noticeable reduction of the severity of the convulsions in almost all cases. Few skeletal and no other unfavorable reactions occurred. The postconvulsive apnea rarely lasted longer than 30 seconds and never longer than a minute and a half. The only measure necessary in these cases was insufflation with oxygen for at the most one minute. Patients who have fragile bones or are otherwise feeble may require larger doses. If considerably larger doses of succinylcholine iodide are given, the simpler anesthesiologic methods of keeping the air passages open must be mastered. Holmberg and his co-workers conclude that because of variations in individual sensitivity to the muscle-relaxing substance and in skeletal and muscular strength no generally applicable standard dose can be set that will in all cases protect against injury and never cause respiratory arrest, but by individualization and adjustment of the dose the aim can be more nearly realized. During the last six months about 1,000 treatments were given along the lines indicated, without skeletal, respiratory, or other complications.

Philippine Medical Association Journal, Manila

29:47-104 (Feb.) 1953. Partial Index

Problems of Our Disabled Workers. J. S. Santillan and A. A. Gorospe.—p. 47.
Is Appendicitis Still a Surgical Problem? Presentation of Non-Localizing Acute Appendicitis. F. C. Guzman.—p. 57.
Intravenous Oxytocics in Labor. J. C. Delgado.—p. 67.

Policlinico (Pract. Sect.), Rome

60:297-332 (March 2) 1953. Partial Index

Asthma and Pregnancy. G. Rossi.—p. 297.
*Blood Withdrawal by Catheterization of Right Heart in Treatment of Acute Pulmonary Edema. L. Provenzale.—p. 304.
Syndrome Produced by Use of Electroshock with Electronarcoshock Therapy. P. Paladini.—p. 313.

Blood Withdrawal From Heart of Patients with Pulmonary Edema.—Provenzale reports on four patients with secondary pulmonary edema in whom, all treatments having failed, he removed blood from the heart by means of a catheter introduced into the right atrium. The first patient was a 64-year-old man in whom severe pulmonary edema followed pneumonectomy for carcinoma of the right lung. The removal of about 350 cc. of blood from the cubital vein and administration of morphine and other drugs were unsuccessful. His general and local condition improved greatly, however, when a catheter was placed into the right atrium through the basilic vein and 375 cc. of blood were withdrawn slowly. The second patient was a 51-year-old man in whom edema developed after pneumonectomy for neoplasm of the left lung. On the seventh postoperative day, all treatment having failed to relieve the edema, a catheter was introduced into the right atrium. The pressure was 20/6 mm. Hg in the atrium, 80/18 mm. Hg in the right ventricle, and 80/22 mm. Hg in the pulmonary artery. The values before pneumonectomy were 11/2, 40/5, and 40/16 mm. Hg, respectively. About 330 cc. of blood were removed, and the patient's condition was much improved. One month later the pressures within the heart and the pulmonary artery were normal. In both patients the improvement began after about from 100 to 150 cc. of blood had been removed. When, without removal of the catheter, the withdrawing process was stopped at this point, dyspnea and edema reappeared within a few minutes. In the other two patients edema was secondary to lesions of the mitral valve. This procedure failed in one of them because it was used in extremis. In the other it caused regression of the edema, but the patient died 11 days later of a cerebral embolism. To better ascertain the mechanism of action of this method, the author made experiments on three groups of rabbits. All of them were given an intravenous injection of 1 mg. of epinephrine per kilogram of body weight to produce pulmonary edema. Then 30 to 35 cc. of blood were withdrawn from a peripheral vein of the animals of the first group. All of them died from the pulmonary edema, which was confirmed at autopsy. When from 30 to 50 cc. of blood were removed from the right side of the heart of the animals of the second group, only 50% of them died. Autopsy revealed a mild edema and suggested that death was probably due to the acute anemia that followed the removal of blood. The withdrawal of from 60 to 80 cc. of blood from the right side of the heart of the animals of the third group and reintroduction of the blood into the right femoral artery saved all the animals except one. Two hypotheses are advanced to explain the mechanism of action of intracardiac blood removal from patients with pulmonary edema secondary to lung surgery or to heart disease. Either the excess flow to the lungs is decreased or a more normal ratio is established between the volume of blood in the systemic circulation and that in the pulmonary circulation. The author favors the second hypothesis, since removal of blood directly from the right side of the heart would, as a rule, reduce congestion of the pulmonary circulation better than removal of peripheral blood.

Presse Médicale, Paris

61:381-400 (March 18) 1953. Partial Index

*Researches into Cultivation of Koch's Bacillus from Laryngeal and Pharyngeal Mucus Specimens Obtained by Swabs. A. Saenz, Jr.—p. 381.
Attitude Tremor. M. Bonduelle.—p. 382.
Recent Methods of Artificial Respiration. A. Djourno.—p. 385.
Scleroderma. B. Duperrat.—p. 387.
Gastrectomy in Ulcers Situated Very High in Stomach. J. Duval.—p. 389.

Cultivation of Koch's Bacillus from Laryngeal and Pharyngeal Swabs.—The sensitivity of the laryngeal and pharyngeal swab method of cultivation as compared with that of other routine methods used in detecting Koch's bacillus was studied in 100 patients at the Institute of Phthisiology at Montevideo. Control tests by direct examination and examination of gastric washings and sputum were made for each patient, followed by cultivation of material obtained on the same day by the use of laryngeal and pharyngeal swabs. Results were in agreement in 88 cases, 46 of which were negative and 42 positive. They disagreed in 12 cases, two being positive by the control tests and negative by the swab method and the other 10 being negative by the control tests and positive by the swab method. Inconvenience for the patient is minimal; fasting is not necessary and specimens may be taken at any hour of the day. The swabs, after having been used dry in order to collect as much material as possible, are treated first with sulfuric acid and then with sodium bicarbonate according to Adler's technique. The bacilli are cultivated on solid mediums, and secondary bacterial contamination seldom occurs. The whole procedure is simple and rapid, and may be used either for detecting new cases or for evaluating the effects of therapy in old ones.

61:423-462 (March 25) 1953. Partial Index

Biopsy Puncture of Liver and Pigmentary Cirrhosis. P. Harvier, J. Di Mattéo and J. Bescol-Liversac.—p. 423.
Leukosarcomatosis with Initial and Predominant Skin Changes. R. Poinso, H. Payan, E. Calas and Y. Carcassonne.—p. 433.
*Assessment of Treatment of Vitiligo with Ammi Majus. E. Sidi and J. Bourgeois-Gavardin.—p. 436.
Drainage of Wirsung's Canal in Acute Pancreatitis. L. Leger and J. Lataste.—p. 445.
Y-Shaped Vascular Graft for Traumatic Aneurysm of Brachio-cephalic Trunk. J. Oudot, R. Rogé, G. Delahaye and J.-M. Cormier.—p. 449.

Treatment of Vitiligo with Extract of Ammi Majus.—Patients with vitiligo may be treated with extracts of ammi majus given internally in tablet form and concurrently applied locally in a solution, or by either of these methods alone, combined with exposure to the sun or to ultraviolet rays. Irradiation is indispensable to repigmentation; pigmentation never appears in nonirradiated plaques. The results vary according to the patient's age and race; the duration, form, and site of the disorder; the regularity of the treatment; and, especially, the nature of the irradiation (the wave lengths should be between 2,900 and 4,077 Å.). Young children and adolescents, even those with extensive lesions, respond much more rapidly than adults. The rapidity of the response in all patients is directly related to the frequency of the irradiations; when the lesions are irradiated daily, repigmentation appears promptly and increases progressively. Tolerance for the medication taken internally is good; nausea, insomnia, and nervousness may occur, but soon disappear or diminish. The drug is available in 7.5 mg. tablets of xanthotoxine (ammoidine) and 2.5 mg. tablets of Impératorine (ammidine). It should not be given to patients with hypertension, hepatic disorders, or cardiac or renal insufficiency because repeated doses have a toxic effect on the liver. Dosage consists of 3 or 4 tablets a day (½ to ¾ mg. per kilogram of body weight), and patients are instructed to discontinue ingestion of the drug for one week each month. Normal alcoholic solutions contain 10 mg. of xanthotoxine or 5 mg. of Impératorine per cubic centimeter, while weak solutions contain half as much. Periods of irradiation must not exceed one-fourth to one-half minute at first, and should be increased very gradually. Lesions on exposed surfaces must be protected from light following irradiation. The results of the treatment are greatly influenced by the length of time between the application of the solution and the irradiation; the more time the solution has to penetrate the skin, the greater is its photocatalyzing effect. Local application may produce photosensitization or phototrauma. Phototrauma, which is caused by overexposure and occurs 24 to 72 hours after irradiation, is characterized by erythema, with or without edema, and blisters. Fever (40 to 41 C), nausea, vertigo, headache, and transient anuria may also be present. Treatment may be resumed after the subsidence of these reactions, which occurs rapidly under local care. Photosensitization, on the contrary, is an absolute contraindication to local application of ammi majus; it is infrequent, but should be recognized, because the eczema it causes may become generalized. Ammi majus therapy has produced a favorable response in 84 of 106 patients treated in the last two years: 7 are cured, 10 almost completely repigmented, 17 improved, and 50 show signs of repigmentation.

Proceedings of Royal Society of Medicine, London

46:139-218 (March) 1953. Partial Index

Some Effects of Intense Sound and Ultrasound on the Ear. E. D. D. Dickson.—p. 139.
Discussion on Future Role of Occupational Therapy in Rehabilitation. C. B. Wynn Parry.—p. 185.
Chronic Changes in Central Nervous System Following Thorotrast Ventriculography. R. Hughes.—p. 191.
Streptococci of Mouth and Their Relationship to Subacute Bacterial Endocarditis. E. D. Farmer.—p. 201.
Ocular Actinomycosis. C. H. Smith.—p. 209.
Macular Degeneration Treated with Cortisone. H. E. Hobbs.—p. 213.

Sang, Paris

24:205-300 (No. 3) 1953

*New Method of Diagnosis for Hemophilia: Assay of Antihemophilic Factors A and B. J.-P. Soulier and M.-J. Larrieu.—p. 205.
Physiopathology of Acute Leukemia Under Treatment. J. Bernard and G. Mathé.—p. 216.

Assay of Antihemophilic Factors A and B in Hemophilia.—Patients with hemophilia may be divided into two groups: (1) those lacking the classic antihemophilic factor, A, and (2) those lacking a new factor, B, that possesses the same characteristics as that called the plasma thromboplastin component by Aggeler and associates, that described by Schulman and Smith, and that identified by Biggs and co-workers as the "Christmas factor." Prothrombin consumption and heparin tolerance are disturbed in all the anomalies affecting the first stage of coagulation; consequently, tests based on these functions are not specific for hemophilia. A new test provides a simple, specific, and sensitive method of determining antihemophilic activity of either type A or B. It is simple, because the reagents are always available; specific, because variations due to platelets are eliminated; and sensitive, because changes in the antihemophilic factors, which are disturbed even in mild forms of genuine hemophilia, are clearly reflected. In the test for factor A the following reagents are used: (1) human hemophilic plasma deficient in factor A and freed from platelets and thromboplastin by prolonged centrifugation at a low temperature (reagent A); (2) a platelet extract deprived of antihemophilic activity (A) by being kept at a temperature of 38 C for 30 minutes; and (3) the plasma to be tested diluted 1:20 with isotonic sodium chloride solution or a buffered medium immediately before the test. Control plasma is prepared in the same manner. Four tubes, placed in a water bath at 37 C, are filled as follows: (1) 0.1 cc. of reagent A, 0.1 cc. of platelet extract, 0.1 cc. of the plasma to be tested, and 0.1 cc. of a calcium solution (1.11 gm. of $CaCl_2$ per 400 cc.); (2) 0.1 cc. of reagent A, 0.1 cc. of platelet extract, 0.1 cc. of control plasma, and 0.1 cc. of calcium solution; (3) 0.1 cc. of reagent A, 0.1 cc. of platelet extract, 0.1 cc. of isotonic sodium chloride solution or a buffer, and 0.1 cc. of calcium solution; and (4) 0.1 cc. of A reagent, 0.2 cc. of isotonic sodium chloride solution, and 0.1 cc. of calcium solution. The coagulation times in the four tubes are compared. If the clotting defect evident in the hemophilic plasma is not corrected by the plasma being tested as it is by the control plasma, then the test plasma is deficient in factor A. Twelve of 18 hemophilic patients tested by the authors had less than 8% of the antihemophilic factor A. The new factor, B, was detected in a boy of 16 who had all the symptoms of familial hemophilia but whose blood was not deficient in factor A. Tests proved that the factor responsible existed in normal plasma and plasma treated with bishydroxycoumarin and also in normal serum. It resisted heating for 5 minutes at 56 C, but was destroyed at 64 C (partially in 5 minutes, completely in 20). It passed through Seitz filters of 20% asbestos but was retained by those of 50%, and was adsorbed by barium sulfate. Plasma from a patient with A-deficient hemophilia and that from one with B-deficient hemophilia were reciprocally corrective. A test for antihemophilic factor B, similar to that for factor A, uses 0.1 cc. of B-deficient hemophilic plasma, 0.1 cc. of platelet extract heated for 30 minutes at 64 C (this removes factors A and B), 0.1 cc. of the plasma to be tested, diluted 1/20, preferably in a buffer, and 0.1 cc. of $CaCl_2$ M/40. In these conditions, a patient with A-deficient hemophilia will have a clotting time equal to that of a control, while one with B-deficient hemophilia will have a prolonged clotting time.

Schweizerische medizinische Wochenschrift, Basel

83:325-348 (April 4) 1953. Partial Index

Paper Chromatography of Amino Acids Levels in Blood and Urine. C. Giddey.—p. 331.

Occasional Absence of Prolonged Bleeding from Small Wounds in Afibrinogenemic Patients. K. Lenggenhager.—p. 334.

*Hydralazine in Hypertension; Clinical Study. A. F. Essellier, W. Lüscher and L. Morandi.—p. 340.

Hydralazine in Hypertension.—Of 125 patients with hypertention, 76 were treated with hydralazine (Apresoline) and 49 were treated with 1,4-dihydrazinophthalazine (Nepresol). Of the first group of 76 patients, 11 were given intravenously single doses of 15 to 200 mg. of the drug diluted in isotonic sodium chloride solution, 11 were given intramuscularly single doses of 15 to 30 mg. of the undiluted drug, 17 with essential hypertension and 14 with nephrogenic hypertension received orally single doses of 200 to 350 mg., and 17 patients with essential hypertension and 6 with nephrogenic hypertension were given orally 75 to 900 mg. in three to four divided doses daily for 6 to 53 days. A definite drop of blood pressure resulted from the parenteral administration of hydralazine in 90% of the patients with nephrogenic and with essential hypertension. Oral administration of single doses of the drug was effective only in 70% of the patients, and those with nephrogenic hypertension seemed to respond less satisfactorily. The effective single parenteral dose varies from 20 to 40 mg. as compared to 25 to 100 mg. for the oral dose. The degree of the hypotensive effect of the drug cannot be increased by increasing the dose. On parenteral administration, the drug exerts its effect within several minutes, while the latent period after oral administration is much longer and varies considerably with the individual patient. The duration of the effect varies between 30 minutes and 10 hours independently of the route of administration. A much higher dose is required orally than parenterally to obtain the same duration of effect. Untoward side-effects, such as headache, nausea, and vomiting, particularly with parenteral administration, occurred in two-thirds of the patients. Since the hypotensive effect of the drug does not last longer than six hours, oral administration is the only method for continued treatment, but frequent and unpleasant untoward reactions make continued treatment with hydralazine difficult. Of the 49 patients treated with 1,4 hydrazinophthalazine, 25 were given single doses of 25 to 100 mg. in tablet form, and 24 received 25 to 750 mg. in two to four divided doses daily for 4 to 82 days. A definite hypotensive effect was obtained with single oral doses in three-fourths of the patients with essential hypertension and in one-half of the patients with nephrogenic hypertension. The threshold dose lies between 25 and 50 mg. The hypotensive effect occurred rapidly, mostly within 15 minutes, and it lasted for from 1½ to 10 hours and occasionally more than 24 hours. The depressive effect could not be regularly increased by increases of the dose, but its duration was somewhat prolonged. In some patients the effect of the drug varied with the same dose, and it was not always possible to prevent a new increase of blood pressure by repeated doses of the drug. A drop of 20 to 45 mm. Hg of the diastolic pressure was obtained with continued administration of 25 to 750 mg. of the drug daily in half of the patients with essential hypertension, while there was less response to the drug among the patients with nephrogenic hypertension. Untoward reactions to 1,4 dihydrazinophthalazine were less frequent and less unpleasant than those to hydralazine; occasionally they subsided despite continued treatment or after temporary reduction of the dose of the drug. Treatment had to be discontinued because of intolerance in one-eighth of the patients. The authors conclude that continued treatment of hypertensive patients with hydralazine or 1,4 dihydrazinophthalazine results in a drop of blood pressure in about half of the cases, but it does not restore the pressure to normal. Patients with essential hypertension respond better than those with nephrogenic hypertension. Side-effects are frequent and unpleasant but always reversible. The 1,4 dihydrazinophthalazine is somewhat superior to hydralazine in its effect. These interesting but not always therapeutically effective agents are still in the stage of clinical trial.

Semaine des Hôpitaux de Paris

29:1093-1126 (April 6) 1953. Partial Index

Intraspinal Cholesteatoma (Dermoid Cyst) Compressing the Cauda Equina; Report of Case and Nosological Discussion. D. Mahoudeau and S. Daum.—p. 1093.

Total Hypophysectomy in Treatment of Cancer. J. Le Beau and M. Perrault.—p. 1096.

*Hemispherectomy and Epilepsy: Electroencephalographic Studies. M. Feld and R. Lecasble.—p. 1104.

Hemispherectomy and Epilepsy.—Hemispherectomies were performed on two boys and two girls between the ages of 3½ and 15 years with jacksonian epilepsy. In all four cases pneumoencephalographic studies had revealed atrophy of one cerebral hemisphere, with total dilatation of the corresponding lateral ventricle. In each patient electroencephalographic recordings were made before, during, and after the surgical intervention. As a result of their observations the authors state that bilateral abnormal electrical activity manifested before the hemispherectomy is not a contraindication to the surgical intervention, provided that both the clinical and the roentgenologic findings indicate the surgical intervention. The abnormal electroencephalographic activity observed in two of the authors' patients in the nonatrophic hemisphere before the operation, proved after the operation to have been projected from the atrophic hemisphere; this activity, therefore, must be considered only as repercussion despite the fact that in one of the patients the chronological and morphological characteristics of this activity seemed to be autonomous. While preoperative electroencephalographic recordings did not reveal gross anomalies in one of the patients, the electrocorticogram (with the electrodes placed directly on the cortex) revealed a focus in the left frontal region with spikes and delta rhythm. Significant divergences between the preoperative electroencephalogram and the electrocorticogram may, therefore, be expected. Electroencephalographic recordings taken from the hemispheric stump after the removal of the pallium revealed a residual epileptic activity, localized in one patient in the insula, in another patient in the tail of the caudate nucleus, and in a third both in the insula and in the caudate nucleus. In such cases surgical intervention should be completed by removal of the structure with abnormal electrical activity. Results obtained by adhering to this rule showed that the patients did not have additional functional deficiency. Postoperative electroencephalographic recordings revealed a small amplitude of the tracings obtained from the half of the scalp corresponding to the side operated on. The tracing obtained from the remaining hemisphere resumed its normal character; the previously recorded epileptic activity had disappeared. The small amplitude of the tracings on the operated side as projected by the opposite hemisphere becomes larger at a later period.

South African Medical Journal, Cape Town

27:257-272 (March 28) 1953. **Partial Index**

Supracondylar Fractures of Humerus in Children. C. Morris.—p. 260.
Rapid Diagnosis by Frozen Sections. F. A. Brandt.—p. 263.
*Internal Anal Sphincter: Its Surgical Importance. S. Eisenhammer.—p. 266.

Surgical Importance of the Internal Anal Sphincter.—According to Eisenhammer, the internal sphincter plays a leading role in the normal functioning of the anal canal. It is a continuation of the circular muscle coat of the rectum and is composed of unstriated smooth muscle that shows continuous involuntary postural tone. Like the involuntary smooth circular muscle of the alimentary tract, the internal anal sphincter is predisposed to spasm. It has been widely accepted that the division of the internal sphincter will give rise to anal incontinence. The author, however, emphasizes that, if a normal internal sphincter is divided, no postoperative spasm can occur and, when healing is completed, the anatomical variation is infinitesimal. If a contractured fibrotic muscle is divided, the initial separation is far greater and, on healing, normal expansibility and dilatation is restored. The slender subcutaneous external sphincter must be carefully preserved, as it guards against a patulous or gaping anus. The author describes and illustrates with diagrams the technique of internal anal sphincterotomy. He regards the following as indications for this operation: senile anal contraction or spasmodic stricture, postoperative stenosis, congenital stenosis, chronic anal fissure, hemorrhoids with or without a chronic fissure where contracture of the sphincter is present, uncomplicated hemorrhoids, anorectal abscess, low-lying intrarectal tumors, and constipation due to contraction of the internal sphincter. He calls attention to misunderstandings about the pecten band, which he defines as the lower free border of the internal sphincter that has undergone the changes described as chronic internal anal contracture. He stresses that an understanding of the surgical significance of the internal sphincter must lead to a better anatomical approach to the surgery of the anal canal.

Thorax, London

8:1-86 (March) 1953

Study of the Origin and Development of Lung Cancer. C. Raeburn and H. Spencer.—p. 1.
Carcinomatous Abscess of the Lung. C. Strang and J. A. Simpson.—p. 11.
Certain Unusual Radiological Appearances in Chest of Coal-Miners Suffering from Rheumatoid Arthritis. A. Caplan.—p. 29.
Physiological Basis of Reflux Oesophagitis in Sliding Hiatal Diaphragmatic Hernia. J. A. Aylwin.—p. 38.
Bronchial Arteries in Pulmonary Emphysema. L. Cudkowicz and J. B. Armstrong.—p. 46.
*Farmer's Lung: Review of Present Knowledge. C. J. Fuller.—p. 59.
Anomalous Pulmonary Venous Drainage. A. R. Muir.—p. 65.
Influence of Streptomycin on Incidence of Pleural Effusion Complicating the Division of Adhesions. D. C. Beatty and A. Wiener.—p. 69.
Practical Measure of the Maximum Ventilatory Capacity in Health and Disease. M. C. S. Kennedy.—p. 73.

Farmer's Lung.—Fuller says that the terms farmer's lung and thresher's lung are synonymous. He has observed 32 patients with this disorder during the past eight years. Farmer's lung occurs in three forms: (1) the acute isolated attack, (2) the subacute and more chronic condition, which usually terminates in spontaneous recovery, and (3) the chronic and irreversible phase, in which secondary lung changes such as emphysema and fibrosis have occurred as a result of repeated exposures over a period of years. Five of the 32 patients had short acute attacks, 24 were in the subacute phase, and three had chronic pulmonary damage. Farmer's lung seems to be due to the inhalation of dust from moldy hay or straw. It has been suggested that this disease might be a true bronchomycosis and that Candida albicans might be the causal fungus, but Fuller says the evidence is far from conclusive. If farmer's lung were due to a bacterial infection, it would seem reasonable to expect that microscopy and sputum cultures would reveal some recurrent and constant infecting organism, which has not been the case. A third possibility is that farmer's lung is a form of asthmatic response to sensitization either by the degradation products of moldy grass or to molds themselves. If by asthma one means bronchial edema and spasm, accompanied by forced expiratory effort and sibilant rhonchi, then farmer's lung is not asthma. The fourth possibility is that farmer's lung is the result of irritation of the bronchial epithelium by the breakdown of mold spores and possibly grass particles resulting in miliary inflammatory response. Repeated exposure to hay or threshing dust with a high mold spore content eventually might produce in the bronchial wall a lesion resembling fungal granuloma in rabbits. Histological material from human subjects is difficult to obtain, because farmer's lung is almost never fatal. The one death that occurred in this series was in a patient who two years previously had had an attack of farmer's lung with spontaneous recovery. Necropsy showed widespread pulmonary tuberculosis. Neither culture nor microscopy of the lung tissue showed evidence of bronchomycosis. Many questions about farmer's lung remain unanswered, and the author suggests further studies.

Wiener klinische Wochenschrift, Vienna

65:241-260 (March 27) 1953. **Partial Index**

*Vagotomy Combined with Simple Suture as Surgical Treatment for Perforated Gastric and Duodenal Ulcers. R. Jelinek.—p. 245.
Therapy of Hypertension. E. Hueber.—p. 248.
Processes of Myomalacia in Cardiac Auricles. P. Hermanek.—p. 248.
Relief of Pain in Incurable Carcinoma of Genitals. H. Tischer and J. Reitinger.—p. 252.

Vagotomy Combined with Simple Suture for Perforated Ulcers.—Between 1947 and 1952, 8 men with perforated ulcers of the stomach or duodenum were treated by simple suture followed by primary vagotomy and 16 were treated by suture or drainage and formation of an omental cuff followed by secondary vagotomy one and a half months to six years later when a new ulcer occurred. Length of postoperative hospitalization averaged 22 days in the first group and 19 days in the second group. Most of the patients were followed up for four to five years. Of the eight patients with primary vagotomy, six (four with gastric and two with duodenal ulcers) became completely free of complaints and their working capacity was fully restored. One of the remaining two with duodenal ulcers complained of vagus diarrhea and in the other carcinoma of the stomach developed but probably had no causal relationship with his former condition. One of the 16 patients with secondary vagotomy was lost to observation. Of the remaining 15, 9 were operated on for duodenal ulcer and 6 for gastric ulcer and 13 of them submitted to follow-up examination. Nine of the patients were free of complaints, and eight of these nine had been operated on for duodenal ulcer. Of the remaining four patients, gastritis was demonstrated on roentgenologic examination in two and a deformation of the duodenal bulb in one, while no pathological changes were observed in the last patient who complained of diarrhea. One of the 16 patients with secondary vagotomy died of pulmonary embolism on the third postoperative day. Because of the risk of malignant degeneration of ulcer of the stomach, the author is no longer using vagotomy for treatment of perforated gastric ulcer. As a result of his experience in this small group of patients, he feels justified in recommending vagotomy for further trial in certain cases of duodenal ulcer because of the simple technique, the small burden on the patient, and the low mortality. Diffuse peritonitis is the only contraindication to the method.

BOOK REVIEWS

Human Factors in Air Transportation: Occupational Health and Safety. By Ross A. McFarland, Ph.D., Associate Professor of Industrial Hygiene, Harvard School of Public Health, Cambridge, Mass. Cloth. $13. Pp. 830, with illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 18; 95 Farringdon St., London, E.C.4, 1953.

This timely and significant book makes available to the medical profession an authoritative analysis of an important subject. A wide range of information from the biological and engineering sciences has been integrated with the specific problems of aviation medicine and flight safety. The treatment is broad in scope, and the data are applicable to both civilian and military flying and to industry in general.

Beginning with the selection of men for flight training, a wealth of source material of interest to the general practitioner has been reviewed and interpreted. The various tests in the most exacting of all physical examinations are related to the requirements of the job. Such a functional interpretation of a physician's findings may aid in the placement of personnel and in prolonging the useful lives of workers in many other occupations. Dr. McFarland points out that all the problems of flying cannot be answered by the aeronautical engineer. Indeed, the limiting factors in flying are in the capacity of the human organism to adapt to tremendous variations in altitude, acceleration, and prolonged periods of intense concentration. The great value of periodic health examinations is clearly illustrated by many case studies. Chapters on the maintenance of physical and psychological fitness, operational fatigue, and aging should aid the physician in handling many problem cases.

Other chapters of particular interest to physicians deal with the sanitary control of airports and ground facilities and health and quarantine regulations in air travel. An analysis of the problem of transportation of disease or disease vectors by aircraft is included. Since passengers can be conveyed from an infected to an uninfected area during the incubation period of the major communicable diseases, every physician should be aware of these dangers of air travel.

With the tremendous increase in air transportation, the physician is confronted with problems relating to the advisability of air transport for patients with various disabilities. Dr. McFarland has made many suggestions regarding the care and welfare of patients traveling by air. This thorough analysis of the physical and physiological problems encountered in flight, illustrated with case material, should aid the physician in making decisions regarding individual patients.

The chapter on the effective development of medical and safety departments in air transportation provides an excellent model for many other industries. It would be difficult to find a more convincing case for the great values to be derived from applying modern medical procedures to industry.

While this book can be read profitably by aviation medical specialists, the author's comprehensive approach to the subject of occupational health and safety recommends it as an important reference source for the physician. Excellent illustrations and summarizing paragraphs at the conclusion of each chapter enhance the usefulness of the book.

Fundamentals of Clinical Cancer with Emphasis on Early Diagnosis and Treatment. By Leonard B. Goldman, M.D., Clinical Professor of Radiotherapy, New York Medical College, Flower and Fifth Avenue Hospitals, New York. Cloth. $8.75. Pp. 312, with 222 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1953.

This book is merely a collection of material that has been published repeatedly; there is nothing new or original in the presentation or approach. The author states in the preface that some may take exception to the absolute statements and conclusions he presents but that his conclusions are the results of his own experience in treating cancer patients during the past 20 years. It is, nevertheless, dangerous to state as fact subjects that are controversial. For example, Paget's disease of the breast is dismissed in a mere four lines; it is specifically referred to as "an outward extension of a deeply seated cancer of the breast." Many would take issue with this statement. With regard to aspiration punch biopsy the author states that the capsule is not broken and no infection is introduced. In the next sentence, however, he states that a minute nick in the skin is made over the tumor. This not only breaks the capsule but may introduce infection; furthermore, the possibility of missing a small malignant zone by use of this method is not mentioned. The statement that early cancers may be removed by simple surgery while invasive cancers should be eradicated by radical surgery might be challenged. Some authorities on cancer surgery would take a diametrically opposite view.

Since this work deals with fundamentals of diagnosis, some mention should have been made of the differentiation of cardiospasm from cancer of the esophagus. Although figure 106 on page 122 shows the relaxation of the spasm after administration of amyl nitrite, the roentgenograms are so poorly reproduced that no differentiation can be made.

Figure 110 on page 127 is a poor example of art work; figure C of this illustration appears to be the ulcerating rather than the infiltrating lesion. On page 149 the statement is made that the gallbladder is palpable in cancer of the extrahepatic ducts "because the common bile duct is obstructed." This is a poor explanation, since the common bile duct is also obstructed when a stone is present, yet the gallbladder is small. No attempt is made to differentiate these two conditions or to explain the pathophysiology that results in the small inflamed gallbladder as compared to the noncicatrized organ, which is distendable.

Chapter 7 dealing with tumors of the breast is poorly presented. Both skin retraction and nipple retraction are stated to be caused by "fibroblastic reaction." This is evasive and confusing, particularly since no mention is made of the importance of the involvement of Cooper's ligaments and the lactiferous ducts as pertaining to these phenomena. Figure 155 demonstrates gentle palpation of a nodule in the breast for the purpose of demonstrating dimpling. Since tactile sensation and gentleness are important, one wonders why the examiner's hand is gloved. The subject of mammary dysplasia is presented under the old terminology of cystic hyperplasia (chronic cystic mastitis). It is impossible to dismiss such a subject in less than 10 lines. Greater attention to detail and arrangement of material might have improved this work.

The Management of Abdominal Operations. Edited by Rodney Maingot, F.R.C.S. Cloth. $24. Pp. 1253, with 532 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1953.

This volume is directed to "postgraduates . . . senior resident medical and surgical officers. . . . Fellowship candidates . . . the general surgeon and those who are desirous of keeping abreast with developments in this field." The editor is one of Britain's outstanding surgeons, well-known in America for his previous books and writings, and his collaborators are 32 other British authorities. The manner of presentation is most successfully carried out in that this work of 33 different writers is coherent and uniform throughout in its point of view. The book is a summation of everything that concerns abdominal operations and reads like an informal, concise discussion by an authority. The authors assume that the reader is conversant with classical symptomatology and minutiae of operative technique; thus he does not have to reread standard material to obtain a new or important point. This forthright presentation permits a mature discussion, for which the authors and editor deserve great praise.

Another outstanding feature is the inclusion of the latest advances associated with major abdominal surgery. There are excellent chapters on fluid and electrolyte balance, surgical

---

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

shock, chemotherapeutic and antibiotic drugs in abdominal surgery, the role of vitamins in abdominal surgery, abdominal injuries, and abdominal operations in children. Discussions of the internist's point of view are included when pertinent. The chapter on clinical and pathological values in health and disease is of practical value to the busy surgeon who has not been close to the laboratory where rapid advances are taking place. In keeping with progress is a chapter on psychological factors in abdominal surgery; this is not a perfunctory discussion in generalities but an excellent presentation in concrete terms.

No large work can possibly include every detail, and this one contains certain omissions and disagreements. In the chapter on biliary tract disease, no mention is made of Phemister's classical work on the etiology of calcareous deposits or calcified gallstones (cystic duct obstruction), although beautiful illustrations of calcified gallstones are shown. Too little is said of the patient who is just as ill after cholecystectomy as he was before. All surgeons would not agree that "the Talma-Morrison operation now has no place in the treatment of ascites, etc."; no mention is made of preoperative "chronic shock," i. e., reduced blood volume; venous pressure receives scant mention in connection with shock, and the only blood substitute mentioned is acacia (gum arabic). In the chapter on psychological factors are the statements: "If a patient asks and is told he has the disease [cancer] . . . Nothing is to be gained by deliberately lying to the patient." Many persons of experience believe that in no circumstances should a patient be told he has cancer. The family, or close friends if there is no family, of course, must be told the complete truth.

The appearance of the book is most attractive. The paper is of excellent quality, the large print agreeable to the eye, the tables and figures informative, and the illustrations are of the highest quality. This work is recommended as a reference and textbook for those doing abdominal surgery. The book will serve to crystallize thinking in this field and present new facts and stimulating ideas. It is a comprehensive postgraduate course in abdominal surgery that will not become outdated for some time.

Comroe's Arthritis and Allied Conditions. Editor: Joseph Lee Hollander, M.D. Collaborating editors: Nathan R. Abrams, M.D., et al. Fifth edition. Cloth. $16. Pp. 1103, with 399 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1953.

Owing to the rapid advances made in the field of rheumatology in recent years, there has been a real need for revision of this book. This has been eminently accomplished in the present edition. The editor and the 17 collaborators are experienced rheumatologists, some of whom have been outstanding in clinical and investigative work. In addition to the basic information that this textbook has always contained, the more recently developed concepts in the field of rheumatology are included. For the most part the original format has been retained, including the helpful summaries in box form. Numerous excellent illustrations have been added. The bibliographies at the close of each chapter are extensive and in most instances include recent references. The style is uniform and easy to follow.

The book has 10 parts, about half of which are devoted to etiology, pathology, and treatment of rheumatoid arthritis. The remainder of the book concerns rheumatoid spondylitis, degenerative joint disease, collagen diseases, gout and other forms of metabolic arthritis, arthritis due to specific infections, traumatic arthritis, painful back, and arthritis associated with uncommon diseases. Proper emphasis is placed on the commoner types of arthritis, with brief discussions on the less common musculoskeletal diseases.

The new chapter on etiology of rheumatoid arthritis contributes a great deal of new thought in this field. The chapters on corticotropin, cortisone, and the intra-articular injection of hydrocortisone reflect the present concept and use of these hormones. There is none of the early hope for a miraculous cure or fear of permanent harmful effects from administration of these steroids; instead, there is a realistic appraisal of the benefits and limitations of the hormones in the treatment of rheumatoid arthritis and other rheumatic conditions. The chapter of low back pain and sciatica is a valuable addition covering anatomy, salient points in the history and physical examination of low back strain, and herniation of the intervertebral disk. Summaries in box form would have added to the value of the chapter, and its contents could have been developed more fully. This book remains the best authoritative volume on arthritis and allied diseases. It is highly recommended to students of rheumatology, internists, general practitioners, and undergraduate students.

Poliomyelitis. By W. Ritchie Russell, C.B.E., M.D., M.A., Consultant Neurologist to United Oxford Hospitals, Oxford, England. Cloth. $3. Pp. 84, with 20 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; Edward Arnold & Co., 41-43 Maddox St., London, W.1, 1952.

This small volume can be read in a single evening, and it should be a rewarding and interesting experience for any physician who wants a quick "refresher course" on the aftercare of poliomyelitis. The author, unlike most neurologists interested in poliomyelitis, is concerned with clinical aspects of this disease beyond the central nervous system. The book reflects the fact that Dr. Russell has a wide and general clinical experience with poliomyelitis and has followed patients not only in the role of a neurological consultant but as a physician in charge of the case; that is, from the time his patients have come into the hospital, through the anxious period of acute illness, through the infectious stage, and throughout subsequent months or years in cases with paralysis. In this respect he has demonstrated how a neurologist often can give continuity to the therapeutic team and can occupy a position as an intermediary with the internist, the orthopedist, and the physical therapist.

The first half of the book concerns the nature of poliomyelitis, its clinical features, physical examination, and some of the etiological factors. The second half describes management and treatment and reflects the author's experience in handling serious cases of poliomyelitis.

Two points that have not received enough emphasis in the U. S. deserve mention. One is the theory that postural drainage is a simple measure often neglected in the care of patients with respiratory paralysis and/or bulbar involvement. The author is convinced that the use of proper posture for the patient is vitally important and should not be delayed. The other point is his belief that the treatment of paralyzed limbs need not be dominated by the rule that weak muscles should always be rested in a partially relaxed position. He does not believe that deliberately induced fatigue harms paretic muscles in the recovery stages of poliomyelitis. If one is willing to accept this point of view, the value of various methods of handling paralyzed muscles can be subjected to simple physiological tests to compare the results of grossly different plans of treatment.

Diagnostic Tests in Neurology: A Selection for Office Use. By Robert Wartenberg, M.D. Forewords by Sir Gordon Holmes, M.D., F.R.S., and by Stanley Truman, M.D. Cloth. $4.50. Pp. 228, with 62 illustrations. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1953.

Dr. Wartenberg has justly deplored the overemphasis on neurological diagnosis by laboratory methods, many of them inappropriate and, at times, misleading. His view is well expressed by quotation from Balfour: "I very much doubt if the modern doctor with the laboratory at his back . . . is as good at the bedside . . . as those who have had to trust to their powers of observation." Nowhere is that truer than in the field of neurology. Yet a losing battle is being fought; there is an ever increasing tendency to join Foster Kennedy's "Union of Slick Gadgeteers."

In this short monograph the author has discussed a number of simple clinical tests that are of value in demonstrating disorders of the nervous system. Whether such a disconnected presentation of a group of signs and tests is of value each reader must determine for himself. Neurology, however, is not "reflexology," and this book, as the author has stated, is a systematic presentation of neurology correlated with basic anatomy, physiology, and pathology.

Some of the author's premises are questionable. His discussion of the unilateral dilatation of the pupil, which develops after head injuries (page 37), is incorrect. Dilatation seldom is due to pressure of a blood clot on the third nerve. In fact, with an extradural hemorrhage arising from the middle meningeal artery, that could not occur. Usually the uncus herniating through the incisura of the tentorium cerebelli involves the third nerve. Furthermore, such a mydriasis, with or without a hemiparesis, may develop as the result of a subdural hemorrhage as well as with bleeding from the middle meningeal artery. Most neurologists would not agree that a slow, coarse nystagmus on looking to one side is primarily indicative of a cerebellopontine angle tumor (page 43); in fact, an intracerebellar tumor is more likely. Although the author has recognized that many so-called pyramidal signs are associated with lesions of the extrapyramidal system, he seems to have promoted this confusion rather than clarified it (section 3). There are a limited number of references in the text, but there is no bibliography.

Pathologie und Bakteriologie der Endokarditis. Von R. Böhmig und P. Klein. Cloth. 66 marks. Pp. 312, with 104 illustrations. Springer-Verlag, Reichpietschufer 20, (1) Berlin W. 35 (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, 1953.

This book represents the combined efforts of a pathologist and a bacteriologist and is based on the examination of 300 cases of endocarditis observed at necropsy. There are, consequently, few clinical considerations. After presentation of the general pathology of endocarditis and normal anatomic changes, bacteriology is discussed, including questions of technique and emphasis on the classification of streptococci. This is followed by a chapter on the particular pathological anatomy and bacteriology of endocarditis. The classification differs from that accepted in the U. S., and emphasis is given to serous endocarditis as a manifestation of inflammatory edema. Principles of antimicrobial therapy are also discussed in this chapter. A short chapter deals with transition of the different types of endocarditis and the attempt to present an organized scheme. Another chapter concerns experimental endocarditis and the observations of the investigators. The final chapter, mainly speculative, presents the results and conclusions applicable to clinical medicine. The presentation attempts to integrate the recent American concepts of endocarditis and collagen diseases with the older German studies, and the American literature is well represented. A considerable amount of factual information is intermixed with remote philosophical concepts, which, as such, seem to add little to the understanding of pathological processes. This difficulty is aggravated by an awkward style and lengthy, sometimes incomprehensible, sentences. The illustrations are excellent. The book has limited value for the American clinician or pathologist and may serve best to illustrate the German position on the pathology of endocarditis.

Blood Cells and Plasma Proteins: Their State in Nature. Edited by James L. Tullis. Memoirs of University Laboratory of Physical Chemistry Related to Medicine and Public Health, Harvard University, number 2. Cloth. $8.50. Pp. 436, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1953.

This book records a series of seminars on the physical chemical characteristics and biological properties of blood and plasma. The book is divided into seven sections covering the formed and fluid parts of human blood; their discovery, characterization, and classification according to physical properties and chemical interactions; factors concerned with blood coagulation; components of human blood concerned with immunity; erythrocytes; leukocytes; enzymes of the plasma; and lipoproteins and glycoproteins of blood and tissues. The subjects are discussed by a number of authorities, and many charts, tables, and diagrams illuminate the text.

The material in this volume is highly important in view of the increasing use of various fractions of human blood in the practice of medicine. The inclusion of historical background in some of the sections, particularly in that presented by E. J. Cohn, is commendable. Part of the material is highly technical and is meaningful primarily to those who have a special interest in the chemical aspects of the subject. On the other hand, a large portion of the book is of general medical and biological scope and importance and is understandable without special knowledge of physical chemistry. For example, the sections on the blood clotting system, the immune globulins, and the lipoproteins present many of the current theories. This book is recommended to anyone interested in keeping abreast of modern developments in medicine and its allied fields.

Famine Disease in German Concentration Camps: Complications and Sequels, with Special Reference to Tuberculosis, Mental Disorders and Social Consequences. By Per Helweg-Larsen, et al. Supplementum 83, Acta psychiatrica et neurologica scandinavica. Paper. Pp. 460, with 25 illustrations. Ejnar Munksgaards Forlag, Nørregade 6, Copenhagen, K, 1952.

This monograph is a valuable clinical description of famine disease as the syndrome was reported by 1,282 Danes who survived internment in German concentration camps during World War II. It pictures the macabre conditions under which starvation occurred and recognizes the difficulty of separating the effects of psychic trauma from nutritional factors that contributed to the syndrome of famine disease. Of special merit are the sections dealing with hunger edema, polyuria, hunger diarrhea, alimentary diarrhea, metabolism, avitaminoses, and mental deterioration. The record of treatment, emphasizing a dietetic regimen, will aid physicians in avoiding some of the errors that occurred during World War II as a result of a too sophisticated approach of clinicians to the supposed deficiency states in semistarved patients. The description of rehabilitation and the comments on the permanence of the famine-induced condition will be of interest to those concerned with rehabilitation of such persons. The 484 complete references in the bibliography enhance the value of the book. Study of this document is recommended to medical nutritionists, psychiatrists, internists, and others concerned with the care and rehabilitation of war prisoners.

Advances in Internal Medicine. Volume V. Editors: Williams Dock, M.D., and I. Snapper, M.D. Cloth. $10.50. Pp. 464, with illustrations. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11; Interscience Publishers, Inc., 2a Southampton Row, London, W.C.1, 1952.

This is a collection of nine authoritative review articles on topics of current interest in internal medicine. The reviewers summarize and interpret the results of recent investigations and discuss application of these results to clinical management. Extensive bibliographies are appended. The volume begins with a practical discussion of the diseases of the pregnant woman affecting the fetus. This is followed by a scholarly review of the technique and complications of cardiac catheterization and the information on circulatory dynamics gained by this procedure in various types of heart disease. There is a short discussion of the mechanism of production of portal hypertension and the various surgical approaches to its correction. The metabolic and pathological changes occurring in the anemia of infection and in gout are reviewed in detail, and the management of these conditions is outlined. Other chapters consider the clinical use of ganglionic and adrenergic blocking agents, clinical experiences with corticotropin and cortisone, and various aspects of the influenza problem. A final chapter deals with laboratory investigations of abnormal proteins in myeloma. The reviews are adequately indexed. Physicians interested in the subjects covered will find this volume a useful postgraduate refresher course and reference work.

Pain Syndromes and Their Treatment with Special Reference to Shoulder-Arm Pain. By James M. Tarsy, M.D., Chief, Arthritis Clinic, University (New York Postgraduate) Hospital, New York University-Bellevue Medical Center, New York. Cloth. $12. Pp. 592, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 299 Queen St., W., Toronto, 2B, 1953.

This excellent book should be welcomed by all physicians, because pain probably represents about *50%* of patients' complaints. In this book, these problems are outlined mostly with respect to pain in the body; problems of pain in the head are not included. Considerable space is devoted to diagnostic and therapeutic blocks for pain. One of the outstanding sections of the book is an exhaustive consideration of diagnosis and treatment of shoulder-arm pain and other similar types of pain. The paper is of fine quality; the illustrations are excellent; and the index is adequate.

Cardano the Gambling Scholar. By Oystein Ore. With translation from Latin of Cardano's Book on Games of Chance, by Sydney Henry Gould. Cloth. $4. Pp. 249, with 33 illustrations. Princeton University Press, Princeton, N. J., 1953.

Girolamo Cardano of Milan was one of the fathers of medicine "next to Paracelsus and Nostradamus." He was born in 1501 and died in 1576, leaving behind 10 huge volumes containing information on many subjects. The son of a gifted father, Cardano was born out of wedlock, which barred him from membership in some of the learned societies. He was poor, but "When he finally began to make money he managed his affairs well, and above all he was a very popular physician with a great and universally recognized reputation" (page 34). Cardano was a student of all the sciences and philosophies and was a prolific writer on mathematics, astronomy, physics, ethics, religion, and philosophy. He also published a life of Christ and one of the Blessed Virgin. He was an egoist but confessed equally to vices and virtues and was "an enigmatic character" who, in the words of Bacon, "seems to have taken the whole world for his province." In some respects Cardano resembled Voltaire in his brilliance, his inconsistencies, and his utter unreliability; yet he had a certain sweetness and light that charmed many men but brought hate from others.

Professor Ore became interested in Cardano partly because of his attempt to rationalize gambling, to put "chance" on a sound basis with formulas and discussion of those "probabilities" that some of us first encountered in advanced algebra. The last section of the book is a translation of Cardano's "Liber de Ludo Aleae" or "Book on Games of Chance." This book is interesting and is exceedingly well put together.

Oral Anatomy. By Harry Sicher, M.D., D.Sc., Professor of Anatomy and Histology, Loyola University School of Dentistry, Chicago College of Dental Surgery, Chicago. Second edition. Cloth. $13.50. Pp. 529, with 310 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1952.

This is a concise, well-written, and accurate monograph on anatomy of the head and neck. The illustrations are good, and the type and format make for easy reading. The first section deals with basic anatomy and the second with its practical application. This section should be of interest to students and physicians alike. There are excellent discussions of the applied anatomy of local anesthesia blocks, arterial hemorrhages and their control by ligation, the spread of dental infections along anatomic planes, tracheotomy and laryngectomy, the temporomandibular joint, and the endentulous mouth. While this book was designed primarily for dentists, it should also be valuable to students and surgeons interested in head and neck surgery. A copy in every hospital medical library would be a practical aid to the intern and resident staff.

Ménière's Disease. By Henry L. Williams, M.D., M.S., Head of Section of Otolaryngology and Rhinology, Mayo Clinic, Rochester, Minnesota. Publication number 129, American Lecture Series, monograph in Bannerstone Division of American Lectures in Otolaryngology, Audiology and Broncho-Esophagology. Edited by Norton Canfield, M.D., Associate Clinical Professor of Otolaryngology, Yale University School of Medicine, New Haven, Conn. Cloth. $7. Pp. 349, with 8 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1952.

For many years the diagnosis and treatment of Ménière's disease have been difficult. Since Ménière's original description of the disease nearly a century ago, many conflicting opinions have been expressed regarding every phase of the entity. Most physicians are at a loss as to what procedure to follow when confronted by patients with vertigo, dizziness, tinnitus, incoordination, deafness, nausea, and vomiting. In an attempt to introduce order into this situation, the author has drawn on his extensive experience to describe in rational fashion such topics as anatomy and physiology of the labyrinth, histopathology and physiopathology, loss of hearing, diagnosis and differential diagnosis, allergy and autonomic dysfunction, and medical and surgical treatment. This book is an important contribution to medical literature and is highly recommended.

Oral Surgery. Volumes I and II. By Kurt H. Thoma, D.M.D., F.D.S. R.C.S. Second edition. Cloth. $30. Pp. 865; 867-1688, with 1789 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1952.

A wealth of new material has been presented in this edition. The author has incorporated chapters on local and general anesthesia and one on chemotherapy. Detailed consideration is given to abnormalities of the edentulous mouth and the combined oral and surgical prosthodontic problems. The chapter on surgical correction of developmental deformities involving the face and jaws includes new procedures. Two other chapters discuss acquired jaw defects and surgical deformities that require correction by means of grafts and the treatment of oral abnormalities and defects.

The chapter dealing with the general care of the patient is exceedingly well done. In the preface to the first edition, the author mentions that some might believe that the subject of supportive care has been overemphasized; however, Dr. Thoma believes that such overemphasis is rarely possible. The fact that controversial theoretical minutiae have been omitted is especially commendable. The chapter on treatment of traumatic disease of the jaws is outstanding because of the detailed yet terse manner in which the material is presented. As in the other chapters, the text reads well and can be easily assimilated.

The use of red coloring to depict submucous layers and cleavage planes aids the attempt to produce tridimensional perspective. It is unfortunate that the color did not reproduce well on some of the pages. In the chapter on anesthesiology the danger of infiltrating inflamed tissues is emphasized. Although this is an established fact, reemphasis is warranted. A minor fault is the method of labeling figure 1028. The names of the structures rather than letters should have been placed on the illustration. This work can be unreservedly recommended to anyone interested in oral surgery.

Clinical Obstetrics. By members of staff of Pennsylvania Hospital. Edited by Clifford B. Lull, M.D., and Robert A. Kimbrough, M.D., Director of Division of Obstetrics and Gynecology, Pennsylvania Hospital, Philadelphia. Cloth. $10. Pp. 732, with 400 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1953.

This book has been prepared by a number of specialists discussing the phases of their fields that are related to clinical obstetrics.

The management of the newborn in the neonatal period is well covered; and the discussion on the relation of roentgenology to the practice of obstetrics is well done and profusely illustrated. Anesthesia, both local and general, is described with possibly too much emphasis on spinal anesthesia for the teaching of undergraduate students. There are sections on sterility and fertility in both men and women and the influence of diet on pregnancy and the puerperium.

The book is well illustrated, and the type is clear and well spaced. It should be an excellent book for undergraduates beginning the study of obstetrics, postgraduates at the intern and residency level, and general practitioners who have obstetric problems.

Gastric Cancer. By Alfred H. Iason, M.D., Attending Surgeon, Adelphi Hospital, Brooklyn, N. Y. Cloth. $7.50. Pp. 316, with 100 illustrations by Alfred Feinberg, Instructor of Medical Illustration, Department of Pathology, College of Physicians and Surgeons, Columbia University, New York City. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1953.

This monograph on gastric cancer represents a tremendous amount of work and is a good résumé of the current thinking on this subject. It is unfortunate that a book containing so much information does not give any of the author's experience and does not include more original illustrations. In fact, the work represents a compilation of the literature and contains an extensive bibliography, although an evaluation of the various concepts is not particularly well done. The book may be of value to the student because of the extensive bibliography, but it is not otherwise recommended.

QUERIES AND MINOR NOTES

VACCINATION OF CHILD WITH ECZEMA

To the Editor:—*A girl, 5 years of age, has had atopic eczema since the first year of life, the antecubital and popliteal areas being chiefly affected. Various substances have been used locally, with little benefit. The child has never been vaccinated against smallpox. It is my understanding that smallpox vaccination is contraindicated in the presence of eczema. Is there any method by which smallpox vaccination, which is required for admission to public school, can be done safely in this case?* *M.D., Washington, D. C.*

Answer.—It is not necessary to withhold smallpox vaccination from a child with localized atopic eczema. It is, however, desirable to vaccinate such a child at a time when the eczema is quiescent rather than during a flare-up. Also, reactions that are more apt to occur in a child with the atopic form than in one with a nonatopic form should be anticipated. A flare-up of the eczema may occur during the reaction to vaccination, with consequent increase of discomfort and necessity for resort to local treatment of the eczema. It is possible that a kaposiform eruption of the varicelloid or herpetic type will develop. Obviously, measures to prevent transfer of material from the site of vaccination to eczematous areas of the skin should be employed. In the young child who cannot be relied on to cooperate, protection by bandaging of affected areas may be necessary temporarily.

IODIDE AND BROMIDE ERUPTION

To the Editor:—*A pustular, acneform rash confined to the face, especially the nose, forehead, and chin, appeared in a 47-year-old man a few weeks after he began to use a bromine-containing hypnotic and an iodine-containing multivitamin and mineral preparation. The use of both these preparations was stopped when the eruption appeared, but several weeks have elapsed and the condition persists. What is the best treatment for this mild bromidism and iodism, topically and systemically? The patient's occupation makes it imperative that his appearance cosmetically be of the best. The only relevant past history is adolescent acne of the face of several years' duration, which cleared up following x-ray treatment. Would application of ultraviolet light help now?* *M.D., New York.*

Answer.—This eruption appears to be one of the typical manifestations of sensitivity to iodine or bromine or both. The most important therapeutic measure is to interdict the intake of iodine and bromine insofar as this is possible. This means elimination of drugs containing iodides and bromides, iodized salt, and the following foods, which contain large amounts of iodides: clams, crabmeat, lobsters, oysters, salmon, shrimp, red snapper, flounder, cod fish, asparagus, radishes, tomatoes, carrots, lettuce, the leafy vegetables such as kale, mushrooms, watercress, potatoes, and eggs. The second step in treatment is ingestion of large amounts of regular table salt, provided there is no contraindication, such as severe hypertension. This promotes the excretion of both iodides and bromides. The local treatment of the eruption should be similar to that used for acne vulgaris. A flesh-tinted sulfur and resorcin ointment, such as Acnomel or Sulforcin base, is satisfactory, and, in addition, these preparations tend to obscure the lesions and make the condition less conspicuous. Also, it may be advisable to open the individual lesions with an acne stilette. There is no contraindication to the use of ultraviolet light therapy, but it is doubtful that this would change the course of the eruption significantly.

FEVER IN THREE SIBLINGS

To the Editor:—*I am caring for four children who have resided in Kodiak, Alaska, within the past year. About nine months ago, all four were given BCG vaccine, because they had negative tuberculin test results. The three older children were told they had a successful vaccination, but the youngest had no reaction. At present, all except the youngest have daily temperatures ranging from 99.5 to 101 F. All appear relatively healthy and show no abnormal physical conditions. Roentgenograms of the chest were normal. Results of brucellosis tests, tuberculin patch tests, and intracutaneous old tuberculin tests are all negative. A trial course of antibiotic therapy produced no change in temperature. Could the BCG still be causing the fever?* *Russell E. Atkinson, M.D., Crestline, Calif.*

Answer.—The fact that the results of tuberculin tests are negative now rules out the BCG vaccine as a cause. If tuberculosis is the cause of the fever, the infection is recent, since allergy has not yet developed. The fact that the three children are febrile at the same time points more strongly to an intercurrent infection. Primary tuberculosis manifests certain symptoms in children that are not produced by other conditions, notably a fleeting morbilliform rash of varying degrees of intensity. Instead of clearing there is a dry, scaly residue that may remain for some time. Occasionally erythematous lesions may be present. Otherwise, there are no systemic symptoms. If the process is tuberculous, the tuberculin test should become positive within three months from the time of infection. The children's condition seems to be some obscure process that does not fit into the pattern of ordinary children's diseases. Rheumatic fever is a possibility, and it has been noted to occur in families, but in this family the possibility seems remote. Brucellosis should be searched for again. Infectious mononucleosis could explain the phenomenon. Blood cell counts should confirm or disprove presence of such a condition.

CANCER OF CERVICAL STUMP

To the Editor:—*Please discuss the incidence of carcinoma of the cervix following conization as compared with total hysterectomy. When there is technical difficulty in removing the cervix, is a combination of subtotal hysterectomy plus conization advocated?* *John P. Gifford, M.D., Vero Beach, Fla.*

Answer.—Most authorities agree that carcinoma of the cervical stump is not rare. In a study by Carter and co-workers (*Am. J. Obst. & Gynec.* **57**:37, 1949) on adenocarcinoma of the cervix, it was found that 22% of the cases occurred in women with cervical stumps. A report from the department of obstetrics and gynecology of Vercelli (Cantone, C.: abstracted, *Am. J. Obst. & Gynec.* **55**:543, 1948) stated that carcinoma of the cervical stump developed in 0.67% of the patients who had had previous supracervical hysterectomies. These and other reports plus the observations of this consultant confirm the belief that, if at all possible, total hysterectomy is the procedure of choice. It is realized that in some patients it is technically difficult, if not impossible, to remove the cervix, and in these a combination of subtotal hysterectomy and conization of the cervix is beneficial. Crossen (*Am. J. Obst. & Gynec.* **57**:187, 1949) used wide conization and believed that it combined well with abdominal surgery. He states that in patients in whom hysterectomy must be supravaginal instead of complete, conization is especially helpful in eliminating the menace of continuing cervicitis in the cervical stump. In his series, wide conization of the cervix definitely reduced the incidence of subsequent cervical carcinoma. None of the 1,005 patients with cervicitis had cervical cancer during the period of observation, which in some cases was as long as 14 years.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

EDEMA OF UNKNOWN CAUSE

To the Editor:—*A woman, aged 40, for a year has had intractable edema of the feet, legs, thighs, arms, and abdominal wall; ascites is present, also. There are no signs of pericardial or pleural fluid. The heart, an electrocardiogram, the urine, the blood urea nitrogen and glucose levels, the serum chloride, protein, albumin, and globulin levels, blood smears, and blood cell counts all are normal. Pitting on pressure is marked. The edema is severe enough to make ambulation difficult, and the patient has gained 35 lb. (15.9 kg.) in weight. There have been several remissions of the edema, but none that I could attribute to therapy. There are several abscessed teeth. Both breasts on palpation reveal apparently benign cysts, which have been present for about five months. One year ago, a cyst was removed, which was pathologically benign. The thyroid has several nodules 0.5 to 1 in. in diameter (20 years ago an adenoma was removed). There are no signs of thyroid toxicity. Two years ago, a cholecystectomy was done because of stones. Recovery has been good, and the patient is not on a restricted diet. A hysterectomy was done four years ago because of severe backache attributed to uterine fibroids; two moderately sized fibroids were found on operation. Mild postoperative menopausal symptoms were easily controlled with estrogens. No estrogen has been given in a year. Another peculiar condition is a localized area on each arm above the elbow, involving several square inches, of increased hair growth. Another physician administered thyroid without effect. I have given large doses of thiamine subcutaneously and mercurial diuretics subcutaneously, without effect. I attempted to give cortisone orally, but the first dose caused dizziness, and I stopped it. On the basis of the meager history given, do you have suggestions as to diagnosis?*

M.D., New York.

Answer.—The diagnosis of the disease underlying the edema in this case is difficult, since the findings reported seem to exclude cardiac, renal, hepatic, hypoalbuminemic, lymphatic, and other less common general types of edema. Scleredema might be considered, but this almost invariably involves the face, especially the eyelids, and is often associated with pleural or pericardial fluid. Furthermore, the usual prodromal symptoms of scleredema were lacking in this patient. There remain only the hormonal edemas. Of these, myxedema is probably excluded by the failure to respond to thyroid. Edema of ovarian or adrenal cortical origin may be diagnosed by careful clinical observation and urinary hormone assays for estrogens and 17-ketosteroids and other adrenal cortical hormones. The serum sodium concentration should be determined during the height of the edema and later during a remission, to detect possible dilution of sodium by retention of water due to excessive posterior pituitary antidiuretic hormone secretion. These studies are sufficiently complicated to require hospitalization in an institution equipped with research laboratories. If adrenal hormonal imbalance is indicated, a trial of cortisone treatment might be helpful; however, the diagnostic work-up should be completed first. Elephantiasis due to lymphatic obstruction rarely involves the arms, unless there has been operative destruction of lymphatic channels, and frequent spontaneous remissions would be extremely unlikely in this disease. Only a biopsy of an affected region could definitely establish this diagnosis.

SKIN PIGMENTATION IN INTERMARRIAGE

To the Editor:—*What is the pattern of inheritance of skin pigmentation in intermarriage between persons of white and Negro races? Does a colored offspring sometimes result from the mating of mixed parents who are phenotypically white?*

William R. Gabbert, M.D., Danville, Ky.

Answer.—Patterns of inheritance are usually based on the Mendelian law, but on the question of Negro-white relationship the information is meager and the opinions divergent, placing it in the field of speculation. Pearson was of the opinion that skin pigmentation inheritance does not operate under the Mendelian law but that the coloring of the offspring of this combination represents a blending. Using a more modern interpretation of the Mendelian law and the use of the color top to match colors, Davenport arrived at these conclusions: There is no pattern of inheritance of skin pigmentation. The coloring of the first generation offspring of a Negro-white mating was always different from that of the parents, lighter than the darker parent and darker than the lighter parent. The range of color in second generation (grandchildren of a Negro-white mating) for all tested persons was twice that in the first generation. The children of this crossing (mulatto-mulatto) may be either much darker or much lighter than that of the parents. Penetrance of the Negro skin color trait is not predictable for an individual child, but again, according to Davenport, if the pedigree of the parents can be established, the probable range of color among the children may be given within certain limits. Colored offspring can result from the mating of mixed parents who are phenotypically white. Lewis states, "The conclusive evidence against inheritance of skin color in humans by blending is the occurrence of important differences among children of the same parents found by both Davenport and Barnes. In the light of modern genetics human skin color can be accounted for neither by blending nor by one pair of Mendelian alleles. There are undoubtedly multiple factors, of which at least two pairs (as suggested by Davenport) may be considered of major importance. The combination of multiple factors, with an absence of dominance, is sufficient to account for the known facts, although some of the details are still obscure."

ADMINISTRATION OF IRON

To the Editor:—*In which form is iron best tolerated by the intestines? Does it cause constipation or diarrhea? Are there substances more palatable and simpler to take than hydrochloric acid in the treatment of some anemias?*

M.D., California.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—The most readily assimilable form of iron is ferrous iron, the ferric being less soluble and absorbable. Ascorbic acid will convert ferric iron of food into ferrous iron; consequently it is of value in promoting iron absorption. The rationale behind the use of hydrochloric acid to improve the absorption of food iron is based on the increased solubility of ferric iron in an acid medium. Hydrochloric acid is often used along with specific therapy in the treatment of pernicious anemia, but its effectiveness has not been established. Hydrochloric acid is usually diluted in water and taken through a straw. It is also available in capsule forms, such as glutamic acid hydrochloride and betaine hydrochloride. These solid preparations slowly release hydrochloric acid when in solution. The most widely used preparation of iron is ferrous sulfate, usually administered in 300 mg. doses after meals and on retiring. Colloidal ferric hydroxide is probably less irritating, the average dose being 100 mg. three times a day between meals; however, since iron must be converted to the ferrous form before absorption, any preparation, if effective, is potentially irritating. It is advisable to give small doses during the first few days of therapy to minimize the local irritant action. Moderate doses of iron preparations do not cause constipation or diarrhea except in persons unusually sensitive to the local irritant action.

Answer.—Any ionized form of iron is a protein precipitant and, therefore, irritating to the mucosa of the gastrointestinal tract. Since all available data indicate that only ionized iron is absorbed, it is evident that intestinal irritation by therapeutically effective forms of iron can only be minimized, not avoided altogether. This can be accomplished best by administering the iron after meals, by giving the patient a chance to develop tolerance to iron, and by using doses no larger than are necessary for maximum therapeutic effect. The soluble, simple ferrous salts are most efficiently absorbed and can, consequently, be given in the smallest amount. Many patients, for reasons not understood, can tolerate ferrous gluconate or ferrous glutamate better than ferrous sulfate, although the reverse may also be observed. Tolerance to iron preparations also develops in many persons. For this reason, it is often wise to begin therapy by having the patient take only one tablet after dinner for several days, then one tablet after each of two meals for several days, gradually increasing the dose thereafter, until the full therapeutic dose of three to four tablets (containing roughly 180 to 240 mg. of elemental iron) has been reached. Even if this regimen is followed and several different iron salts are tried, rarely a patient still experiences so much gastrointestinal distress that he finds iron therapy intolerable. In these exceptional cases, it may be necessary to administer iron parenterally, i. e., as saccharated iron oxide. Iron therapy may cause either diarrhea or constipation. The reason for this difference in response to the irritating effect is not known. Hydrochloric acid is of little importance in the treatment of anemias. Its administration does not improve the response to hematinic agents. Occasionally, a patient with achlorhydria may have mild diarrhea or abdominal discomfort, which does improve when hydrochloric acid is given with meals. Many anemia clinics have adopted the policy of treating patients without the use of hydrochloric acid, and then, when the hematological response is complete, the dilute acid is given for one to two months. The patient himself judges whether the added acid has made him feel better; if so, he is permitted to continue its use. There are several commercial preparations of glutamic acid hydrochloride in capsule form that may be used as substitutes for dilute hydrochloric acid.

ANDROGEN THERAPY OF OVARIAN CANCER

To the Editor:—*In discussion of a case of papillary serous cystadenocarcinoma of the ovary by the tumor board of a hospital, the question arose of what the experience has been with the use of testosterone in treatment of this disease. I will appreciate any information you may be able to give on this subject.* *F. R. Moore, M.D., Newport, R. I.*

Answer.—While it would be correct to say that there would be no rationale in androgen therapy for serous papillary cystadenocarcinoma of the ovary or other types of ovarian cancer, such a statement would not be a satisfactory answer, since there is little rationale for the palliative use of the male sex hormones in advanced mammary carcinoma with bony metastases or estrogens in prostatic cancer, although both these plans have yielded excellent results. Scattered efforts at testosterone therapy for both genital tract cancer and ovarian malignant disease have been made, but with no evidence of worthwhile effect. In a recent case of advanced ovarian cancer with peritoneal metastasis observed by this consultant, testosterone had been given in large doses, with extensive masculinization changes resulting, but the patient and her family felt that the growth had been accelerated rather than retarded.

ARSENIC IN THE URINE

To the Editor:—*A man has lost weight, from 160 lb. (72.6 kg.) to 128 lb. (58.1 kg.), over the past two and one-half years. He has no symptoms other than loss of strength and weight, with no desire for food. Results of neurological and physical examinations were normal, except for the lack of muscular strength. X-ray and laboratory examinations were of no aid, except for a test showing fractional amounts of arsenic in the urine. The patient has never received any drug containing arsenic, but tests on the water supply from his local well were positive for arsenic. The water from this well was cut off three years ago, and the deeper well water contains none of this mineral. After one week of dimercaprol (BAL) therapy the urine shows four times the previous amount of arsenic. Is arsenic accumulated in the body from water intake over a period of many years, and may this be accepted as a case of arsenic poison?*

Barnwell R. Baker, M.D., Biltmore, N. C.

Answer.—The description given does not point necessarily to arsenic poisoning, although the loss of weight, strength, and appetite is consonant with the usual features of chronic arsenic poisoning. The quantity of arsenic in the urine and in the water supply would need to be known. Traces of arsenic are always present in urine, and the presence of traces of arsenic in drinking water is not unusual and is without significance. It is observed that the suspected source of arsenic was eliminated three years ago but that arsenic is found in the urine at present. This would make arsenic poisoning from the water supply an unlikely prospect. While arsenic is long retained and slowly eliminated from the body, about 140 days after the last exposure represents the upper limit of retention, and it is scarcely conceivable that it would persist for as long as three years. In the usual low grade chronic arsenic poisoning, skin disturbances dominate the picture, with or without loss of hair and nails. In this instance, it would be desirable to determine the arsenic content of clipped hair and, possibly, finger and toenail trimmings. The determination of arsenic in human tissues or excretions is difficult. Few laboratories have the equipment and experience necessary to provide exact determinations. If, from repeated examinations, harmful levels of arsenic should be demonstrated, this entire matter should be explored fully and a search made for possible exposure sources.

EOSINOPHILS AND CORTISONE

To the Editor:—*What explanation is given for the increase in eosinophils in a patient with sarcoidosis treated by cortisone acetate? Herpes zoster, according to the literature, is helped at times by cortisone or corticotropin. I was in contact with two patients in whom herpes zoster developed while taking cortisone acetate and one in whom it developed while taking corticotropin. What is the explanation for this?*

Joe C. Gilbert, M.D., Lebanon, Pa.

Answer.—No satisfactory explanation can be offered at this time to account for the increased circulating eosinophils after cortisone administration in a patient with sarcoidosis. In the past it was thought that the lack of eosinopenic response indicated insufficient biological action of the hormone; however, it is now known that eosinopenia is not as regularly observed after cortisone administration as after corticotropin administration. If this patient had been treated with corticotropin, a rise in eosinophils could be explained on the basis of allergic hypersensitivity to the corticotropin preparation used. This consultant also has noted on several occasions the occurrence of herpes zoster during cortisone or corticotropin therapy, but in these cases there was surprisingly little associated pain. One might postulate a disturbance in the antibody-virus relationship from these hormones that would allow otherwise neutralized or latent virus to gain the upper hand and produce clinically evident disease. Except for possible amelioration of pain, it is doubtful that these hormones exert any beneficial effect in this disease.

ACTINOMYCOSIS

To the Editor:—*Last week a patient was referred to me with an axillary lesion, which, after a biopsy and culture was shown to be a lesion of actinomycosis. It bled freely when I removed part of it, and I wore no gloves. To stop the bleeding, I had to use several sutures, and I put on gloves at the last. What chance is there that I will contract this disease? What preventive measures should I take? Has any treatment supplanted use of roentgen irradiation and the antibiotics for this disease?* *M.D., Alabama.*

Answer.—There are only a few classic cases in the world literature in which actinomycosis has been known to be transferred accidentally from man to man. It is such a remote possibility in your case that you may rest assured that you did not become infected during your surgical manipulations. The fact that you did not mention having broken areas of skin on your hands is further evidence against such an unlikely possibility. Penicillin and other antibiotics, such as aureomycin and oxytetracycline (Terramycin), are the drugs of choice in the treatment both of local cutaneous manifestations of actinomycosis and systemic involvement. Roentgen irradiation and the use of iodides have been found to be unnecessary adjuncts for successful end results in cases in which the antibiotics are administered.

ROSEOLA INFANTUM

To the Editor:—*I have understood the term "three day measles" to apply to the typical rose rash of infants (roseola infantum), as a disease entity peculiar to infants and not related to either true measles or rubella. I hear the term applied frequently to numerous rashes in adults. Is the occurrence of roseola infantum possible or common in adults?*

M.D., Indiana.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Roseola infantum is a definite but benign disease of infants and children. It is doubtful that it ever occurs in adults. It is considered a separate and distinct disease from German measles and is known by such names as exanthema subitum and Zahorsky's disease. It has been transmitted from one child to another by means of injection of blood. In roseola infantum, the child has fever for three to five days, and, as the fever is subsiding or within 12 hours after it has subsided, the measles-like rash appears.

Answer.—The term "three day measles" is often applied loosely by the mothers of children who may have had any one of a variety of skin rashes accompanied by mild or no constitutional symptoms. As the name implies, roseola infantum is a disease of infants and young children, principally between the ages of 6 months and 3 years. It has been estimated (Zahorsky) that fully 95% of cases occur in children younger than 2½ years. Few cases have been reported in adults. In large outpatient departments, physicians generally assume a history of "three day measles" to mean rubella.

PREGNANCY IN WOMAN WITH DOUBLE CERVIX

To the Editor:—*A 20-year-old primigravida has two complete cervices, only one of which shows signs of pregnancy. She is nearing the end of the first trimester and has had no bleeding. No bicornate uterus can be palpated. Should this patient be given a chance to deliver her baby vaginally? She has a normal gynecoid pelvis. If she has a single uterine cavity with a double cervical os, should the septum be clipped when effacement is complete and dilatation of the cervix is under way? What are the chances of the uterus' rupturing if it is septate?*

William R. Cotner, M.D., Salina, Kan.

Answer.—Although there may be a lack of fusion of any part of the Mullerian ducts, resulting in any degree of duplication of the uterus and vagina, a double cervix owing to a cervical septum is rare. In all likelihood the septum extends the length of the uterus, or there may be two complete uterine horns. The extent of the defect can be visualized only by hysterosalpingography. Labor can be allowed to proceed naturally. It is not likely that the septum will impede the effacement and dilatation. If the septum is limited to the cervix and does prevent complete dilatation it can be cut. Breech presentation is exceedingly common in women who have uterine anomalies. The baby has been known to straddle a cervical septum, and if this occurs it should be cut early before it is forcibly torn. There is almost no likelihood of uterine rupture because of a septate uterus.

TREATMENT OF PSORIASIS

To the Editor:—*A patient has a severe case of psoriasis, affecting the whole body, except the inside of the arms and the chest. I understand that treatment with Bucky rays has been successful, especially in America. I have been told, however, that in severe cases there is danger of burning internal parts of the body, and that the application of Bucky rays is, therefore, inadvisable. I should be glad if you would let me have your views on this matter.*

M. Lerner, M.D., London, England.

Answer.—The value of Bucky or grenz rays in the treatment of skin diseases is still being debated, and, although some dermatologists advocate treating psoriasis with such rays, it is generally held that destructive rays of any type should not be used for the treatment of a skin disease that, like psoriasis, is apt to recur. Grenz rays, being long wavelength roentgen rays, are absorbed in the epidermis and dermis, so that there is no danger of their burning internal parts, but sequelae, such as those produced by roentgen rays, have been observed in the skin. As a rule it is better to treat severe psoriasis with bland preparations, such as are used for acute dermatitis, since stronger preparations are likely to produce psoriatic exfoliative dermatitis. When the acute stage has subsided, it may be advisable to employ the so-called Goeckerman treatment, in which a combination of coal tar ointment and ultraviolet rays is used. Sometimes autohemotherapy is employed with it. It is a treatment that requires both experience and judgment to be effective.

CLINICAL NEUROSYPHILIS

To the Editor:—*What period of time usually elapses between the appearance of the primary syphilitic lesion and the manifestation of clinical neurosyphilis? Has the number of paretic persons admitted to mental hospitals diminished since the drop in the incidence of syphilis, or is it too early for such a result to be felt?*

J. W. O'Neill, M.D., White Cloud, Mich.

Answer.—This question cannot be answered with regard to clinical neurosyphilis as an entity but only with regard to particular types of neurosyphilis and then only in general terms. Acute syphilitic meningitis is a common accompaniment of secondary syphilis. It may even occur with the primary lesion and before the appearance of secondary symptoms and almost always appears within the first two years of infection. For other clinical types of late neurosyphilis the average incubation period varies. For diffuse meningovascular syphilis, it is probably about 6 to 10 years, for dementia paralytica (general paralysis of the insane) about 12 to 15 years, and for tabes dorsalis about 15 to 20 years. There are, however, exceptions to these statements. Any form of neurosyphilis may, in rare cases, appear within two or three years of infection. On the other hand, the appearance of clinical signs may be delayed for 30, 40, or 50 years. The number of paretic persons admitted to mental hospitals has been dropping steadily since about 1939 (Moore, J. E.: *Am. J. Syph.* **35**:101, 1951).

ENDOMETRIOSIS AND STERILITY

To the Editor:—*What are the recent therapeutic developments in the management of sterility as a result of endometriosis?* *C. H. Denser, M.D., Chatahoochee, Fla.*

Answer.—No new therapy has been discovered that alters much the infertility of women with endometriosis. Some women with endometriosis have pregnancies. There are many factors involved in infertility problems, only one of which is endometriosis. It is not known why patients with this condition seem less fertile than others; only speculation is possible. Estrogens given in adequate amounts (the amount differs according to the patient) relieves the symptoms of endometriosis in most instances. Some believe estrogens have some curative value in the disease. It is likely that the relief of symptoms is the result of the stopping of ovulation by the estrogens. The amounts of estrogens required to accomplish this often are high. There are reports of patients receiving estrogenic substances having conceived. It seems unlikely that patients receiving adequate amounts to relieve the symptoms of endometriosis would become pregnant. Certainly, if amounts high enough to stop ovulation were administered pregnancy could not occur. Surgical treatment seems to help some patients to conceive, but in most cases this is true only early in the disease. The difficult problem is to pick the patients suitable for surgical treatment. In most cases the disease appears more extensive at surgery than was predicted preoperatively, and often the disease so thoroughly involves the pelvic structures that, if properly removed, the remaining organs would be inadequate for pregnancy.

DISINFECTION AGAINST TAPEWORM OVA

To the Editor:—*I would like information on the susceptibility of tapeworm ova, especially of the genus Taenia, to various agents, such as chemicals and heat, that might be used to rid perishable materials of these parasites.*

W. O. Brown, M.D., Scottsbluff, Neb.

Answer.—It is not clear whether by "perishable materials" the inquirer means food that is to be consumed uncooked and whether by "susceptibility of tapeworm ova to chemicals and heat" he means the disinfecting of fecal discharges containing these ova or the rendering of garbage safe for animal food. A summary of information found in a rather exhaustive search follows: Burning or drying is the safest method of disinfecting feces. Boiling will also destroy the ova. Burial is practicable and, if a well is on the premises, should be at least 500 ft. from the well and downhill from it. It should be buried in the upper 2 ft. of soil to protect underground water and to take advantage of natural agencies of purification. The burial spot should not be cultivated for 12 months. For chemical treatment of infected feces, Stiles advises the addition of sufficient sodium hydroxide to make a 3% solution. This will kill hookworm ova in eight to nine days under summer conditions. Taenia eggs with their hard shells will be attacked more slowly. The best method is some septic tank process, as anaerobic fermentation destroys the eggs. Hookworm eggs die in 40 days. Taenia ova require a longer period.

Faust states, "Taenia eggs are very resistant to external conditions. Jepson and Roth of Copenhagen found that they could infect cattle with eggs of T. saginata which had been in excreta for 71 days, free in water for 33 days and free on grass for 159 days. Likewise Newton, Bennett and Figgat (NIH) found that these eggs were apparently 100% viable up to 162 days in activated sludge." Hogs can be fed safely on boiled garbage.

MYOCARDIAL INFARCTION

To the Editor:—*Is the prognosis better in a patient who has had a myocardial infarction and whose electrocardiogram returns to normal than in one whose tracing remains abnormal after clinical recovery, all other factors being equal? Are posterior myocardial infarctions more likely to result in persistent electrocardiographic changes following recovery than are those involving other regions of the ventricular muscle?*

M.D., Pennsylvania.

Answer.—Among patients thought to have had myocardial infarctions whose electrocardiograms later returned to normal, there are likely to be some persons who actually have had some more benign malady, such as pericarditis. It may be suspected, therefore, that prognosis in such a group would be somewhat better than in one that included only persons with persistent QRS changes diagnostic of myocardial destruction. There seem, however, to be no statistical studies to settle the question. Posterior myocardial infarctions are no more likely to show persistent electrocardiographic abnormalities than lesions in other portions of the heart.

SHOULD THE MOTHER NURSE ERYTHROBLASTOTIC BABIES

To the Editor:—*A woman, aged 30, now para 1, gravida 3, who is approaching term, is Rh negative, and her husband is Rh positive. At 34th week of pregnancy, this woman's blood revealed no Rh antibodies. Her first pregnancy was terminated by illegal abortion in the 10th week. The second pregnancy went to term, with spontaneous delivery. The child, now 3, is strong and healthy. Should the mother be permitted to nurse the expected infant? Is it possible for Rh antibodies to be present in the milk of the nursing mother, although not in her blood?* *M.D., New York.*

Answer.—Since in the case described the expectant mother's serum contains no Rh antibodies, the possibility of erythroblastastosis in the infant is excluded (barring sensitization to other blood factors), unless Rh antibodies should appear during the last few weeks of pregnancy. Rh antibodies are never present in the milk when absent from the blood, so that if the mother's serum contains no Rh antibodies, there can be no objection to permitting her to nurse the infant. In fact, experience has shown that there is no harm in permitting erythroblastotic babies of sensitized Rh-negative women to nurse. Apparently, the additional quantity of antibodies that might be ingested and absorbed is so insignificant that it does not aggravate the disease process. In England, erythroblastotic babies are routinely permitted to nurse, since it is considered that the advantages of nursing far outweigh the theoretical dangers of any Rh antibodies the milk may contain.

DEMONSTRATION OF SICKLE CELLS

To the Editor:—*A Negro woman was suspected of having sickle cell anemia. I placed a drop of her blood on a slide, covered it with a coverslip, and sealed it with petroleum jelly. Eight hours later I looked at the slide under the microscope. A white corpuscle was filled with rapidly moving particles, about the size of those you would expect to see in a granulocyte. Is this phenomenon to be expected in sickle cell anemia?* *M.D., Pennsylvania.*

Answer.—The phenomenon of the rapidly moving particles probably is due to Brownian movement of suspended particles in wet preparations and is not of clinical significance. In regard to the sickle cell test, placing a drop of blood on a slide, applying a coverslip, and then sealing with paraffin is an outdated method. It is now well established that sickling is caused by the almost complete insolubility of the reduced pathological sickle cell hemoglobin within the cells. Sickling will only occur if this pathological pigment is sufficiently deoxygenated. Reduction of hemoglobin without damage to the cell is best achieved by adding two drops of a freshly prepared 2% solution of sodium metabisulfite ($Na_2S_2O_5$) to one drop of blood and then covering the mixture with a coverslip. After 5 to 15 minutes the sickled cells are readily demonstrable.

ANTIBIOTICS

To the Editor:—*At a recent postgraduate course, the lecturer stated that only penicillin and streptomycin were bactericidal and that all the other antibiotics, such as aureomycin and oxytetracycline (Terramycin), and also the sulfonamides were bacteriostatic. Please comment on this subject.* *M.D., New Jersey.*

Answer.—All antibiotics and commonly used sulfonamides are bactericidal in vitro against certain strains of micro-organisms, if present in high enough concentrations. What the lecturer meant was that in certain types of infections, produced by susceptible strains of organisms, penicillin or streptomycin may be bactericidal in the concentrations of the antibiotic obtained in the blood of the patient, by standard methods of therapy. As a rule of thumb, it is better for the physician to assume that the action of the antibiotic he is employing will be bacteriostatic. This is the effect that will be obtained in the majority of patients.

PAIN IN ARM ASSOCIATED WITH BOWEL MOVEMENTS

To the Editor:—*I have seen a few patients who have a neuralgic type of pain in the left arm while having a bowel movement. I saw two patients with anal inflammatory lesions (fissure and cryptitis) complaining mildly of the same pain. Is this a definite reflex entity or just a happenstance?*

Glenn A. Hopkins, M.D., Guymon, Okla.

Answer.—There are no reflex connections that could account for neuralgic pain in the arm occurring in association with a bowel movement or with an anal lesion. Straining to move the bowels may aggravate or precipitate pain in the arm from an intraspinal lesion, such as a spinal cord tumor or a herniated cervical intervertebral disc. Whether such an intraspinal lesion is present in these patients would be impossible to say without a more complete examination.

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 152, NO. 15 CHICAGO, ILLINOIS AUGUST 8, 1953

COPYRIGHT, 1953, BY AMERICAN MEDICAL ASSOCIATION

PRESENT DAY TREATMENT OF SUBACUTE BACTERIAL ENDOCARDITIS

THE MINOT LECTURE

Chester S. Keefer, M.D., Boston

In the first Minot lecture, Dr. Castle[1] reviewed and commented on the contributions of Dr. Minot to the field of experimental medicine. In the second Minot lecture, Dr. Sturgis[2] summed up the information concerning a subject that was of lifelong interest to Dr. Minot, namely, leukemia. It was through a patient with a disorder of the blood coagulating mechanism, purpura hemorrhagica, that I met Dr. Minot for the first time. He visited Baltimore late in the autumn of 1923, and my colleague Dr. A. R. Felty and I had the opportunity of discussing with him the illness of the patient who, although she had had acute purpura hemorrhagica from which she recovered spontaneously, had remained well for several months without relapse. It was at that time that I learned of Dr. Minot's deep interest in the broad field of hematology and scientific medicine. Later, as a member of his staff at the Thorndike Memorial Laboratory, I came to appreciate Dr. Minot's contributions to experimental medicine and therapeutics and his example of university medical ideals.

The fact that this section is called experimental medicine and therapeutics is a conspicuous recognition of the fact that the practice of medicine is founded on the experimental method. There is no denying that it is from experiment and a search for the truth that scientific advances are made. Also, no thoughtful person will deny that medical progress during the first half of this century has stemmed primarily from the accumulation of scientific knowledge and its application to the prevention of disease and to the care of the sick through improved medical education and public health practice. Certainly, the central core of a better understanding of the sick stems from the advancement of knowledge and its transmission by our university medical schools. Dr. Minot was a physician who was educated in the basic medical sciences and one who practiced the university medical educational ideal. Through experiment, through the furtherance of knowledge, and through its translation to patients he added much. Dr. Minot learned how to apply the facts of fundamental science that were of practical benefit to the sick. For these reasons, I want to discuss a disease that serves as an example of what can be learned through experimental medicine over a period of 100 years to lead to a partial solution to the problem. I refer to bacterial endocarditis.

Within recent years, it has been found that in many cases bacterial endocarditis, like many other bacterial infections, can be treated successfully. This is especially true of that form of bacterial endocarditis commonly known as subacute bacterial endocarditis caused by Streptococcus viridans or one of the related nonhemolytic streptococci.

RESULTS BEFORE ADEQUATE THERAPY

Before the active therapeutic age, patients with bacterial endocarditis fell into four major groups: first, those in whom the disease was active, with or without bacteremia, and in whom death occurred within 4 to 18 months after the onset of symptoms and signs of infection. This group comprised about 97% of all cases. Second, there was a small group of patients who recovered from the active infection of the heart valves but who died subsequently from the sequellae of the infection, that is, from heart failure, chronic nephritis, or embolism. These patients usually died within one to three years after signs of active infection disappeared. Third, there was a small group of patients who recovered from the infection and remained well for many years without symptoms. Fourth, there was a group of patients in whom there was an arrest of the infection but in whom signs of either recurrence or reinfection developed at a later date; these died of active infection.

These four groups are seen today, but their distribution is quite different. More and more patients recover from the acute infection, but other problems remain. In order to develop better methods of treatment and to

---

Wade Professor of Medicine, Boston University School of Medicine, and Physician-in-Chief, Massachusetts Memorial Hospitals, Boston.

Read before the Section on Experimental Medicine and Therapeutics at the 102nd Annual Session of the American Medical Association, New York, June 3, 1953.

[1] Castle, W. B.: The Contributions of George Richards Minot to Experimental Medicine (George R. Minot Lecture), New England J. Med. **247**: 585, 1952.

[2] Sturgis, C. C.: Some Aspects of the Leukemia Problem, J. A. M. A. **150**: 1551 (Dec. 20) 1952.

improve results, it is essential that the effect of the infection on the heart valves and the reaction of the valves to the injury be understood.

COURSE

It is now widely accepted that the primary insult to the endocardium in all forms of endocarditis, whether bacterial or nonbacterial, is the formation of a thrombus consisting of platelets and fibrin. These thrombi are located along the main line of closure of the valves, oftenest the mitral and aortic and least often the tricuspid and pulmonary valves. The disposition of these thrombi depends on the nature of the injury. If the thrombi are free of bacteria or if they contain bacteria that are promptly killed then organization proceeds, healing takes place, and a scar remains. There may be no valvular insufficiency, or the scar that persists may lead to either valvular insufficiency or obstruction. If there are bacteria in the thrombi and if they are not killed promptly, they grow rapidly and, in many instances, infect the blood. These infected thrombi or vegetations are larger than the nonbacterial forms. They are soft and crumble easily. As a result of the growth of bacteria and their spread to surrounding areas, the thrombi may become massive and may occlude the valvular orifice, or there may be rapid destruction of the valve leaflets with insufficiency; the emboli may be swept into the circulation. From the line of closure, the vegetations grow to the edge of the valve, down into the sinus of Valsalva, along the chordae tendineae, or along the auricular wall, or they extend from the base of the valve into the myocardium to produce a burrowing abscess or perforation of the septum. Thus, this infection that begins as a valvular thrombosis may cause obstruction or destruction of valves with changing heart murmurs and hemodynamics or rupture of chordae tendineae, with the changing heart sounds and murmurs and attacks of pulmonary edema. There may be formation of mycotic aneurysms of the valves or of the sinus of Valsalva, with occasional rupture or leakage into the pericardium and formation of pericarditis; perforation of the septum, with the clinical signs of heart block; an abscess of the heart wall, with rupture; an occlusion of the coronary artery by a thrombus; or, finally multiple emboli to various organs. Thus, the course of this infection may be followed if some of the ways in which the infection behaves are understood.

In the cases of so-called subacute bacterial endocarditis caused by Str. viridans, the vegetations are pinkish, greenish, or yellowish. They rarely cause ulceration and massive destruction of the valves, and the thrombi, or vegetations, are smaller than those commonly seen when the infecting organism is Staphylococcus aureus, pneumococcus, or gonococcus. Auricular vegetations and others involving the chordae tendineae are common, and bacterial emboli are scattered in great numbers to the various organs including the brain, the kidney, and the small blood vessels.

The blood is infected with these bacteria in a majority of the cases, but there may be a bacteria-free stage in which the vegetations show signs of healing or in which they heal completely leaving a scarred, thickened, shortened valve that is draped with large calcified masses.

CHARACTER OF THE THROMBI

The thrombi have been described many times, but Moore [3] examined the vegetations from the heart valves of persons dying from subacute bacterial endocarditis who have not been treated with penicillin. He compared his findings with those from persons who were treated unsuccessfully with penicillin. In short, a vegetation consists of three layers: a central necrotic core of relatively acellular, fibrillar debris and two layers of bacterial colonies surrounding this central core, both of these layers are covered by a delicate fibrillary, acellular material resembling fibrin and platelets. It is apparently difficult for leukocytes to penetrate the barrier of fibrin and platelets. There is also some indirect evidence that anti-infective agents have difficulty in diffusing through this wall.

If the patient lives long enough, there are signs of healing of these vegetations. Healing is characterized by calcification of the vegetations and organization and distortion of the valve. According to Moore, the healing of a thrombus is characterized by fibrosis, hyalinization and calcification of the central necrotic mass, and covering of the surface with endothelium. The effect of penicillin is to reduce or kill the total number of bacteria and to promote the healing of vegetations, since the patients who receive penicillin but who die show more advanced healing than those who are not treated.

The factors that need more study and better understanding are those that promote healing. There are many cases on record in which healing was not completed for many months after the cessation of treatment. There are many reports on "clinically" cured patients who died from other causes but from whom, at necropsy, live organisms were cultured from the heart valves. It has been stated by Cates and Christie [4] that, after death, organisms may be cultured from 30% of the patients in whom the usual clinical criteria for the control of infection were established. Unfortunately, there are no absolute methods of determining that healing has taken place other than through careful study and follow-up of patients.

RESISTANCE TO CHEMOTHERAPY

It is plain that one problem is learning more about the factors that protect the organisms in the vegetations from the full impact of chemotherapy. Attempts have been made to gather and to accumulate more information about the problem of the penicillin penetration of the fibrin barrier in the vegetations so that all organisms are killed. It is well known that micro-organisms can grow in fibrin, and it is well established that penicillin can diffuse into fibrin clots. Also, it has been demonstrated experimentally in animals and in the test tube that micro-organisms growing in fibrin clots can be killed if the concentration of penicillin is adequate. These problems have been studied with great thoroughness by Weinstein and his associates.[5]

---

[3] Moore, R. A.: Cellular Mechanism of Recovery After Treatment, with Penicillin: Subacute Bacterial Endocarditis, Tr. & Stud. Coll. of Physicians, *Philadelphia* **14**: 55, 1946.

[4] Cates, J. E., and Christie, R. V.: Subacute Bacterial Endocarditis: Review of 442 Patients Treated in 14 Centres Appointed by Penicillin Trials Committee of National Research Council, Quart. J. Med. **20**: 93, 1951.

[5] Weinstein, L.; Daikos, Y., and Perrin, J. S.: Studies on the Relationship of Tissue Fluid and Blood Levels of Penicillin, J. Lab. & Clin. Med. **38**: 712, 1951. Personal and unpublished observations.

Weinstein and associates found that penicillin diffuses into fibrin clots slowly so that at least two hours are required for the concentration of penicillin in the clot to reach the same concentration as in the surrounding fluid. When a fibrin clot is implanted subcutaneously and the animal is treated intramuscularly with penicillin, the antibiotic diffuses into the clot and persists there for a longer period than in the surrounding tissue fluids. There is also a direct relationship between the quantity of penicillin administered intramuscularly and the quantity of penicillin in the fibrin clots.

If fibrin clots are infected with various organisms (pneumococcus, hemolytic Streptococcus, and Staph. and Str. viridans) all of the same order of in vitro sensitivity and then planted subcutaneously and the animal treated with a single injection of penicillin, it has been shown that Str. viridans behaves differently from the other three organisms. It was found that sensitive pneumococci and staphylococci were eliminated within 8 hours, that hemolytic streptococci were destroyed within 48 hours, but that Str. viridans decreased over a period of 12 hours and then continued to grow out. These experiments suggest that even penicillin sensitive strains of Str. viridans can survive in fibrin clots after exposure to concentrations of penicillin capable of destroying other organisms. These experiments assist the understanding of some of the features seen in patients; that is, intermittent or discontinuance therapy may be effective if the plasma concentrations of penicillin are high enough to penetrate the fibrin barrier and if the concentration of penicillin is maintained in the area for a sufficient period of time to provide maximum killing. They do not explain the reason it is more difficult to kill sensitive Str. viridans in a fibrin clot than other equally sensitive organisms.

These then are some of the problems in planning treatment. It is plain that the main goals of treatment are to destroy all of the micro-organisms in the vegetations and to prevent a recurrence of infection. To achieve these objectives, it is desirable to know how sensitive the infecting organism is to a bactericidal agent and to use these agents in sufficient quantity and for a sufficient period of time to penetrate the fibrin barrier and to kill all of the organisms.

USE OF ANTIBIOTICS

It has been shown that at least 90% of all strains of Str. viridans are inhibited by concentrations of penicillin of 0.01 to 1 unit per milliliter and that the treatment of these strains is usually successful when adequate penicillin is given. If the organism is resistant to one or more units of penicillin then the results of treatment with penicillin alone are not wholly satisfactory. Cases in which this occurs frequently require combined antibiotic therapy or penicillin and renal tubular blocking agents such as probenecid (Benemid).

Selection of Antibiotics.—It is generally agreed that penicillin is the antibiotic of choice for the treatment of all sensitive strains of nonhemolytic streptococci and Str. viridans and that penicillin and streptomycin should be used in combination in all cases of enterococcic endocarditis.[6]

Occasionally, other combinations of antibiotics, such as penicillin and chloramphenicol or penicillin and bacitracin, are useful in the treatment of resistant infections.[7] These resistant organisms can be tested for their sensitivity in vitro in order to obtain a guide for selection of combined therapy.

Forms.—The two most widely used forms of penicillin for the treatment of subacute bacterial endocarditis are aqueous crystalline potassium penicillin G and procaine penicillin G. The first form may be combined with probenecid if high plasma concentrations are desirable and necessary. Procaine penicillin G has been used with success when fewer daily injections are needed.

Dosage Schedules.—Many different dosage schedules have been recommended, and, in spite of the variation of plan, two points stand out. First, the total duration of treatment is as important as the total daily dose of antibiotic. It has been suggested on the basis of study of many patients that the minimum daily dose of penicillin should be at least 2 million units and that treatment should be continued for a minimum period of four to six weeks. Naturally, the daily dosage must be gaged by the patient's response to treatment. There has been a trend recently to use larger doses of penicillin (10 million units) combined with streptomycin (1 to 28 mg.) daily for two weeks or large doses of penicillin alone for only two weeks.[8] Favorable results have been reported. When short-term treatment is employed, the patients should be watched very carefully for signs of relapse or recurrence of infection, since bacteriological relapse often occurs before clinical relapse. Relapses are most frequent during the first four weeks after treatment is discontinued. The final decision concerning dosage must rest with the clinical course of the patient, and new experience with experimental dosage schedules continues to demand attention.

SUMMARY

The over-all results of present treatment can be summed up as follows. 1. Some patients recover from the infection and remain well and asymptomatic for a period of years. This group makes up 60 to 70% of cases. 2. Some recover from the signs of infection and die later of heart failure, uremia, or cerebral embolism. This group accounts for a steady death rate, after the first six months, possibly equal to the normal death rate in patients with valvular heart disease. 3. Patients die during treatment, usually within the first two months, with signs of active infection, heart failure, cerebral embolism, or hemorrhage. This group comprises about 10 to 30% of all cases. 4. Some patients recover from an initial infection only to have reinfection occur at a later date. This group is very small, about 2%.

CONCLUSIONS

We have come a long way on the path to victory or in the war against bacterial endocarditis, but now is the time to consolidate our gains, to assess the present position, and to plan for the future, because there is still much to be accomplished.

---

[6] Hunter, T. H.: The Treatment of Subacute Bacterial Endocarditis with Antibiotics, Am. J. Med. **1**: 83, 1946; Use of Streptomycin in Treatment of Bacterial Endocarditis, ibid. **2**: 436, 1947. Cates, J. E.; Christie, R. V., and Garrod, L. P.: Penicillin-Resistant Subacute Bacterial Endocarditis Treated By a Combination of Penicillin and Streptomycin, Brit. Med. J. **1**: 653, 1951.

[7] Ahern, J. J., and Kirby, W. M. M.: Cure of Subacute Bacterial Endocarditis with Penicillin and Chloramphenicol: Report of a Treatment Resistant Case, J. A. M. A. **150**: 33 (Sept. 6) 1952.

[8] Hamburger, M., and Stern, L.: Streptococcus Viridans Subacute Bacterial Endocarditis: Two Week Treatment Schedule with Penicillin, J. A. M. A. **149**: 542 (June 7) 1952.

What have we gained? We have prolonged the life expectancy of patients with rheumatic heart disease and with congenital heart disease in whom subacute bacterial endocarditis has developed. Moreover, many who have recovered have remained well and are able to be active at least over a period of years. To assure complete victory, we must achieve, first, the prevention of rheumatic heart disease, the complete prevention of hemolytic Streptococcus infection. Next, we must prevent congenital heart disease. This is a task for geneticists and teratologists that needs the attention of all university medical scientists. Third, we must prevent infection, especially oral sepsis and other local infections that commonly invade the circulation and localize on the heart valves when the local defense mechanism is ruptured or penetrated. This objective may be reached by further study of problems of infection.

I believe that these goals can be reached only through the pursuit and accumulation of scientific knowledge through the ideals of experimental medicine and therapeutics, namely, the advancement and transmission of knowledge. Through experimental medicine and therapeutics, advances will continue on a broad front. The example set by Dr. Minot is one that is fully recognized.

65 E. Newton St. (18).

RESULTS OF INTENSIVE (NARCOSIS) AND STANDARD MEDICAL TREATMENT OF EPILEPSY

Tracy J. Putnam, M.D.
and
Sanford F. Rothenberg, M.D., Beverly Hills, Calif.

The years 1935 to 1939 at the neurological unit of the Boston City Hospital witnessed the beginning of a revolution in the understanding and control of epilepsy. In this clinic, then under the supervision of one of us (T. J. P.), electroencephalography for the first time became a routine clinical service, and its special value in the field of convulsive disorders was demonstrated.[1] The resultant knowledge was utilized to study the effects of various drugs and physiological states on cerebral dysrhythmia.[2] Against this background, one of us (T. J. P.) formulated the conception of a series of specific anticonvulsant drugs, suggested a molecular configuration that has since proved highly successful in several variations, and set up a simple, reliable method of testing the effects of such drugs in animals.[3] The significance of these suggestions and of the theoretical considerations and administrative manipulations that later led to the demonstration of the usefulness of glutamic acid in cases of petit mal [4] and related disorders [5] lies in the fact that they grew out of fundamental neurophysiological considerations and experience. This is a little different from the routine study of chemical series by pharmacologists utilizing established methods of testing,[6] or the routine clinical testing of the products of such investigations,[7] valuable as both may be.

Clinical trial of the new series of drugs was left largely in the hands of Dr. Merritt,[8] who was in charge of the epilepsy clinic in the outpatient department. He meticulously weighed the results and has since continued his interest in similar investigations.[7m] At that time, the foundation of the standard treatment was laid, namely, the principle of starting treatment in new patients with well-known drugs, increasing the dose to the tolerance level, and then gradually shifting to other drugs, which eventually are given in maximal tolerated doses, if relief is not obtained earlier.[7d] Similar studies have been carried out by other members of the original team, now scattered, and their colleagues, with signal success.[9] The recently developed method of rapid determination of optimum medication [10] is clearly an outgrowth of this former association.

The term "standard treatment" apparently was first used by Price and Otto,[7i] without definition. We take it to mean a flexible scheme of treatment in which changes from one drug to another are made until the most effective drug or combination of drugs is found and in which other effective modes of treatment are used, simultaneously or in series, when needed. The chief practical problem is no longer that of attempting to show that anticonvulsant drugs need not be sedatives. This has been done, and the preparation of new variants must be left chiefly in the hands of chemists and pharmacologists. The clinical problems now consist of making a selection among the various drugs and other methods available and searching for new techniques of their application. Methods of selection have been considered in a recent paper [10b]; this paper deals chiefly with methods of use and results.

Although the principles of the standard treatment so far have never been clearly delineated, they have been followed with varying faithfulness in various clinics [11] and, perhaps as a result, with varying degrees of success, as may be seen in the table. (The grading used in the table is that used by Penfield and Steelman.[12]) A few patients in whom the more vigorous and flexible medical treatments failed (grades 0 or 1 response) are suitable candidates for various surgical procedures (chiefly excision of scars or other abnormalities [13]). The remaining unrelieved patients are often dismissed as being untreatable and may have to be institutionalized. It was in the hope of salvaging some of these latter patients that the intensive, or narcosis, treatment was conceived and

---

This study was supported by the Tracy J. Putnam Foundation, Inc.

From the Department of Neurosurgery, Cedars of Lebanon Hospital, Los Angeles.

Because of space limitations, the bibliographic references have been omitted from THE JOURNAL and will appear in the authors' reprints.

first used. Before describing the method and its results, we should like to record the rules governing use of the standard medical treatment and our results with it, to demonstrate that we have not resorted to a drastic, possibly dangerous, new procedure lightly or inadvisedly.

STANDARD MEDICAL TREATMENT

The following principles of selection of drugs and general conduct of treatment, which we have followed as rigidly and thoroughly as possible for all patients coming into our care, are condensed from a recent paper [10b]:

1. Relatively well-known and nontoxic drugs are preferred to dangerous or untried ones. From the standpoint of serious, permanent toxic effects, diphenylhydantoin (Phenytoin, Dilantin) is probably the safest drug, with phenobarbital and bromides in close competition. Glutamic acid appears entirely safe, but may cause gastric irritation, is often disagreeable or even intolerable to the patient, and is of value in only a small proportion of cases. A significantly high proportion of alarming or fatal reactions have been reported from the use of Mesantoin (3-methyl-5,5-phenylethyl hydantoin), trimethadione, paramethadione, phethenylate (Thiantoin), and phenacemide, the risk increasing about in the order the drugs are listed. Close laboratory and clinical supervision is essential when these latter drugs or bromides are used, and, as Abbott and Schwab [15] have pointed out, this materially increases the patient's economic burden.

2. Treatment should always be started with the most familiar, well-tested, and reliable drug, and newer, less well-known drugs should be added or substituted only for clear cause. Formerly, phenobarbital was the accepted standard,[7d] but the steady success and now obviously low toxicity of diphenylhydantoin has caused us to consider it as first choice, regardless of the clinical type of seizure. The initial dose is usually 0.2 gm. daily and it is gradually increased at the rate of 0.1 gm. weekly. Diphenylhydantoin in oil should be used when gastric irritation results from the use of the sodium salt. It is also useful for infants, for whom the drug has to be mixed with food. Diphenylhydantoin is sometimes effective even when its use produces no effect on the electroencephalogram during a rapid determination. Phenobarbital is our standard second choice. In many of our patients, new drugs undergoing clinical trial have been used after the commercially available ones have proved ineffective. So far, little has been accomplished with such drugs.

3. The dose of each new medicament should be increased gradually until symptoms of overdosage are produced, and then it should be reduced slightly. From our experience, it is wholly clear with respect to diphenylhydantoin and reasonably clear with respect to other drugs used that individual needs and tolerances vary widely and cannot be predicted. In many, perhaps in most, patients the effective dose is close to the toxic dose.

Hypertrophy of the gums, which occasionally occurs as a toxic effect of diphenylhydantoin therapy, can almost always be controlled by vigorous massage.[16] The administration of ascorbic acid may also be tried. Amphetamine is often useful in combating drowsiness caused chiefly by phenobarbital. Toxic rashes and leukopenia in two patients in this series apparently have been controlled by the use of cortisone. Unless a medicament under trial is clearly toxic or useless, its use should be continued until the next drug to be evaluated is being given in reasonable doses.

5. The method of increasing the dose of each drug gradually to the tolerance level, adding new ones to the regimen if the ones previously used are inadequate, and gradually discarding those obviously ineffective or deleterious should be continued until the seizures are controlled or until use of all the available drugs has been tried. About three months are required for thorough trial of each new drug or combination of drugs. This period of experimentation, which is often tedious and sometimes almost intolerable, may often be shortened by use of the method of rapid determination of optimum medication,[10b] which has obvious disadvantages also.

6. The use of phenobarbital and probably, also, of Mesantoin, usually should be avoided if spike and dome or "psychomotor" complexes are present in the electroencephalogram or if definite, typical petit mal, dullness, or psychomotor manifestations are present. Phenobarbital, especially, sometimes seems to convert typical petit mal attacks into psychomotor outbursts, suppressing also the "spike" in the electroencephalogram. The use of trimethadione, paramethadione, or glutamic acid should be avoided except in cases in which some or all of these manifestations are present. Use of one of these latter drugs usually should be accompanied by a maximal tolerance dose of one of the hydantoins (diphenylhydantoin or Mesantoin).

7. Diphenylhydantoin, when the dosage is pushed to the tolerance level, is the drug of choice in patients in whom psychomotor phenomena or periodic dullness [10b] are predominant. Glutamic acid, trimethadione, paramethadione, and phenacemide are preferred next, in that order. Amphetamine may be tried. Vigorous exercise should be required of the patient.

8. Patients should be instructed to report the occurrence of one or a few seizures, and the dose of the drug they are using ordinarily should then be increased, or a new agent should be added. In the long run, especially in growing children, some drug tolerance may gradually develop, and the tolerance dose should be readjusted every year or when symptoms recur.

9. The use of adjuvant therapy, such as exercise, avoidance of strain and fatigue and deleterious activities, and simple psychotherapy, is almost always advisable. Extreme moderation in the use of alcohol must be insisted on.

10. Surgical measures should be considered only when adequate standard medical treatment, as defined, and, perhaps, a trial of intensive treatment, as described in this paper, have failed.[12] Similar medical measures usually have to be carried out after cortical extirpation [17] and only sometimes are more effective afterward than they were before.

These rules are easily followed initially, but the program is often difficult to carry through. Often the first drug tried, usually diphenylhydantoin, is successful at once or as soon as the maximal tolerance dose has been found. In about 26% of our 75 patients, however, the period of trial and error became so prolonged and costly to the patient that a rapid determination of optimum medication was undertaken and led to its establishment immediately or shortly in 6 patients.

Comparison of Results from Various Methods of Treatment for Epilepsy

Ambulatory Treatment	No. of Patients	Grade of Improvement, %* 4 (seizure-free)	3	2	1	0	Severe, Toxic, or Fatal Reaction to Treatment, %
No specific treatment							
Trousseau[18]	150	13	..	..	..	..	..
Herpin[19]	58	50	..	..	..	..	..
Bromides							
Turner[18]	360	24	..	28	..	..	..
Pollock[20]	85	72	..	..	..	..	..
Arieff[71]	14†	73	..	..	..	..	..
Ketogenic diet							
Wilkins[25]	30	27	..	..	..	..	..
Keith[7f]	190	35	..	18.1	..	46.3	..
Peterman[7j]	123†	..	80	..	..	20	..
Phenobarbital							
Lennox[26]	760	..	65	..	..	..	..
Arieff[71]	48†	90	..	..	..	..	..
Ives[11b]	111†	27	..	..	..	..	..
Diphenylhydantoin							
Merritt & Putnam[7c]	118	58	27	5	..	10	..
Yahr and others[7m]	50†	15	..	9	..	..	..
Boller[6c]	520†	23	..	24	..	15	..
Ives[11b]	92†	20	28	..	..	20	..
Mesantoin							
Kozol[7g]	115†	..	60	..	..	40	..
Lennox[7h]	30†	..	20	..	..	..	..
Loscalzo[27]	67†	32	50	..	..	18	..
Ives[11b]	41†	39	12	..	..	20	..
Glutamic Acid ‡							
Price and others[4]	8†	12	38	25	..	25	..
Zimmerman and others[5b]	7†	70	15	15	..	..	..
Trimethadione ‡							
Lennox[7e]	145†	33	30	21	..	16	..
Ives[11b]	44†	7	23	..	..	32	..
Phethenylate							
Peterman[7j]	57†	..	65	..	..	31	..
Phenacemide							
Tyler and King[28]	1,562†	37	..	31	..	32	21
Davidson and Lennox[29]	178†	3	19	24	..	..	15
Standard treatment							
Ives[11b]	212	31	..	..	..	..	..
Yahr and others[7m]	319	48	..	37	..	..	..
Present series (without intensive treatment)	75	56	4	7	33	..	..
Radical Treatment							
Excision of cortical scars Penfield[12]	59†	25	30	14	12	18	1.3
Excision of motor cortex							
Pilcher and others[14]	41†	20	30	21	..	..	4
Intensive medical treatment							
Present series	25	64	20	16	..	..	0
Standard and/or intensive treatment							
Present series	75	77	11	12	..	..	0

* Percentages are rounded to nearest digit.
† Selected patients; the basis of selection was not always clear.
‡ Effect on petit mal or psychomotor attacks.

RESULTS OF STANDARD TREATMENT

The patients used for evaluation of the strict standard treatment were unselected, except that the majority had been unsuccessfully treated elsewhere. They consisted of 33 patients seen in the outpatient clinic of the Cedars of Lebanon Hospital and 52 seen in private practice over a five year period (1947 to 1951, inclusive). Although relatively few children are included in this series, on the whole, treatment has been more successful among the children than among the adults. Patients in whom treatment was prematurely stopped for reasons unrelated to the disease, those treated for less than one year, and those in whom the seizures were obviously due to some gross lesion requiring surgical treatment were excluded. Otherwise, no special attempt was made to classify the patients into cryptogenic and symptomatic groups, because in our experience, as in that of Yahr and co-workers,[7m] such attempts at classification do not seem greatly to affect therapeutic results. Owing to the length of time required to complete the many steps of the standard treatment in difficult cases, a large group remains in whom treatment is not yet finished. The proportion of such incompletely treated patients is especially high in the clinic.

The results obtained with the method described are recorded in the table, where they are compared with other series reported in the literature and with the recovery rate in untreated series of patients. Trousseau gives this latter rate as 13%[18] and Herpin as high as 50%.[19] It probably is significant that prior to the advent of diphenylhydantoin, statistics showing the proportion of patients maintained seizure-free are extremely rare.

As many authors have noted, conscientious evaluation of results is difficult to attain. We have adopted the simple classification reported by Penfield and Steelman,[12] into which most reports may be fitted with reasonable accuracy. These authors group results as follows: grade 0, failure; grade 1, 25% improvement; grade 2, 50% improvement; grade 3, 75% improvement; and grade 4, 100% improvement. This rating is designed for a study of the results of surgical treatment, which was considered concluded at the time the patient left the hospital. The designation of such a definite end-point is not possible in assessing the results of medical treatment, including the intensive form, the full results of which may not be apparent until weeks or months after the period of narcosis has ended. We have, therefore, perhaps arbitrarily, taken the position that the standard treatment is completed only after the patient is either relieved of his seizures for a year or has been given a thorough trial of all or almost all forms of medication likely to help him. In some cases, this trial periods was accelerated by the use of the method of rapid determination,[10b] and certain reasonably obvious omissions were made; for example, patients who had grand mal alone were seldom given a trial course of trimethadione, paramethadione, or glutamic acid. It has been our policy to postpone the use of the drastic and expensive intensive treatment until the full course of the standard treatment has been given.

The criticism may be made, with some justification, that this group of "completely treated" patients contains an unduly large proportion of patients likely to be relieved by almost any reasonable form of treatment. It is true that control of the seizures is the commonest reason for transferring a patient out of the "incompletely treated" category. During the five year period in which most of this data was being collected and 75 patients had been established on a level of medication we considered optimum, with or without the intensive treatment in patients not seizure-free, we had also begun treatment of 25 others, which we do not yet consider completed, since the use of several drugs remains to be tried in each. Seventeen (68%) of these latter patients have now attained grade 3 improvement, that is, they are free of grand mal seizures or are able to work.

Of the 75 patients in our "completed" series, 58 are taking diphenylhydantoin in doses up to 0.6 gm. daily, 12 are taking phenobarbital, 12 Mesantoin, 7 trimethadione, 3 paramethadione, 2 each phethenylate, glutamic acid, and AC 268 (5-isopropoxymethyl, 5-phenyl hydantoin [Parke-Davis]) and 1 each phenacemide, Hibicon (3-chloro-N-benzylpropionamide), and mephobarbital (Mebaral). The various combinations of these drugs empirically derived are too complicated to report. Milontin (N-methyl-α-phenylsuccinimide), Nuvarone (3-methyl-5-phenylhydantoin), and several other drugs still in the experimental stage of use have been given trials but have not seemed as valuable as those just listed.

Ives,[11b] Peterman,[7j] and others refer to phenobarbital as the least toxic anticonvulsant drug available. We have been unable to corroborate this in our series. In our experience, phenobarbital is always toxic in doses over about 0.1 gm., producing a drowsiness or depression that seriously impairs the patient's work ability and social adjustment. Further, deaths from the suicidal use of phenobarbital [20] far outnumber deaths questionably attributable to the use of diphenylhydantoin.

INTENSIVE (NARCOSIS) TREATMENT

Since a certain proportion of failures occurs with every type of treatment of epilepsy, no matter how intensive or flexible it may be, the search for better forms of treatment must continue. The idea that some relatively brief, intensive medical treatment may be found has many roots, stretching far back into the past.

It has long been known that surgical procedures of many types may be followed by long periods of relief from seizures. The series of 62 cases of craniotomy, with 42 "cures," collected by Billings [21] well exemplifies this. Many physicians can remember when it was considered good for epileptics "to have their colons reduced to semicolons," as Dr. Frederick Collins expressed it, and the statistical results as reported were encouraging. Relatively brief periods of starvation or longer periods of ketosis are sometimes effective in bringing about a remission of seizures, but either procedure is disagreeable to the waking patient. Possibly, a short period of ketosis may be combined with a prolonged period of narcosis, simulating anesthesia. One of us (T. J. P.) used phenobarbital for this purpose in a few patients about 10 years ago, but without much success. According to Lennox,[22] this same idea was put into practice by Cooter more recently. One-third of his patients are reported to have remained seizure-free after 10 days of such treatment, but it was abandoned after several serious mishaps. A case reported in 1942 seemed significant in several respects: "An interesting case was described by Dr. E. S. Montgomery of Tarentum, Pennsylvania, who wrote in February, 1942, of a patient with pneumonia who was given at each time of sulfapyridine medication a capsule of dilantin [diphenylhydantoin] sodium making a total of 3.2 gm. in fifty hours at which time the patient became comatose with a pulse rate of 42 per minute. The pupils were unequally dilated, the tongue and buccal membranes were dry, the blood pressure 60/20-mm. Hg and there were no tendon reflexes. Fifty hours after the overdosage was discovered the patient asked for water and recovery from this point was uneventful." [23] Dr. Montgomery writes us that this patient is still in good health and free of seizures, and he adds, "I have treated 9 additional cases with large doses of dilantin sodium and 7 of these patients have been symptom free for periods beyond six years. Some of the 9 patients were given doses of dilantin in excess of 4.0 gm. daily for varying periods of 3 to 10 days."

Because of these experiences, we decided to determine the effect of prolonged narcosis, produced chiefly by diphenylhydantoin, combined with the production of ketosis, administration of glutamic acid, and frequent inhalations of carbon dioxide, which are known to abolish slow wave activity in most patients.[2b] The following case reports illustrate the nature of some of the problems that led us to feel justified in taking such a drastic step.

REPORT OF CASES

CASE 1.—A 33-year-old man, referred to us by Dr. Daniel Castile of Riverside, Calif., had sustained a skull fracture and cerebral concussion 11 years prior to his first visit July 28, 1947. At age 26 grand mal and minor seizures had developed. The grand mal seizures were often preceded by an aura of numbness and tingling of the left hand. They occurred one to five times per week without medication; however, when the patient received maximum doses of diphenylhydantoin, they occurred one to two times a month. In 1946, the patient had bilateral burr holes placed for removal of a subdural hematoma that occurred after a head injury sustained during a grand mal seizure. In the previous three years, the patient had had difficulty with his gait.

Neurological examination revealed the following positive findings: Bilateral burr holes were palpable in the frontoparietal and temporal areas. There was mild left lower facial paresis, and mild bilateral vertical nystagmus. The temporal margin of the left optic disc was indistinct, and the temporal half of the disc was bluish-white, especially in the superior temporal quadrant. The reflexes were hyperactive throughout, and Babinski and Hoffmann signs were elicited bilaterally. The abdominal reflexes were absent, but the cremasteric reflexes were intact. The patient had an unsteady, broad-based gait and a slightly positive Romberg sign. Dr. N. A. Bercel's interpretation of electroencephalograms was as follows: "A marked dysrhythmic record at 100 μv maximum. Both frontomotor areas are more involved than the rest of the cortex. There is only a faint suggestion that the left one is the more active side." Other routine laboratory examinations showed nothing of apparent importance.

The patient had been given many different drugs in large doses, including bromides, phenobarbital, and diphenylhydantoin. After some experimentation, it appeared that the following combination of drugs was most effective for him: diphenylhydantoin 0.3 gm., mephobarbital 0.3 gm., Mesantoin 0.4 gm., and trimethadione 1 gm. daily. These amounts represented approximate subtoxic doses of each. The patient felt slightly unsteady but had an average of only one attack daily.

Since the patient was still incapacitated, he was admitted to the Cedars of Lebanon Hospital Dec. 3, 1947, for further study. A ventriculogram was made to make certain that no hematoma or gross scar was present. This showed five old trephine openings, as expected, and a moderate symmetrical dilation of the ventricles. Electroencephalograms were made and showed dysrhythmia, with abnormalities in the anterior third of both hemispheres. Inhalation of a carbon dioxide mixture promptly temporarily wiped out the abnormalities.

As no other means of treatment seemed available intensive treatment was considered. Its theoretical background was explained to the patient and his relatives, and the procedure was accepted by them. Beginning Dec. 5, 1947, the patient was given 0.9 gm. of diphenylhydantoin by mouth daily, with phenobarbital as needed to keep him drowsy, and inhalations of 5% carbon dioxide with 95% oxygen for five minutes every two hours. Special nurses were in attendance day and night. The patient was kept so drowsy that he lay quietly and did not talk but would sometimes arouse between doses and take nourishment and fluids or attend to bodily functions. After the second day, intravenous injections of glucose were required to prevent dehydration. The anticonvulsant medication was withdrawn Dec. 8, and the patient became sufficiently alert the following day to attend to his own needs, so the special nurses were dismissed. On Dec. 10, he was given two doses of 15 mg. of amphetamine to overcome drowsiness and was permitted to return home. Prescribed medication for home use consisted of diphenylhydantoin 0.3 gm., mephobarbital 0.3 gm., Mesantoin 0.4 gm., and trimethadione 1 gm. daily, which was the same amount the patient had taken before his operation.

The patient had no more seizures and returned to his occupation as a rancher. This period of improvement lasted 10 months, when he again began to have minor seizures, which he attributed to a severe emotional disappointment. By this time, we had had more experience with the intensive treatment, and we recommended that it be repeated in a more drastic form. Accordingly, on Sept. 22, 1948, similar precautions being taken, the patient was again given 0.9 gm. of diphenylhydantoin daily, supplemented by 0.2 gm. of phenobarbital every two hours or as needed to keep him drowsy, and a carbon dioxide-oxygen mixture as before. He became deeply narcotized by Sept. 24, when evidences of mild bronchopneumonia accompanied by a diffuse erythema developed. Diphenylhydantoin and phenobarbital administration was, therefore, discontinued. The patient continued to sleep deeply, still receiving inhalations of the carbon dioxide-oxygen mixture. His respiration became shallow, and the periods of administration of carbon dioxide were lengthened. A slight fever and rales in both sides of the chest developed. Antibiotics were given. The patient had several mild seizures daily from Oct. 6 to 12. He was, therefore, given the maintenance medication he had been taking on admission. Because the seizures continued, on Oct. 14 narcosis was induced again with the same combination of drugs previously given. This was continued through Oct. 19, this time without complication. The patient was awake and able to take care of himself on Oct. 23 and was discharged Oct. 26, after which he began taking the same medicaments in the same dosage that he had been taking on admission, plus 1 gm. of phenacemide daily. He has been followed closely since that time and has had no major seizures. Occasionally he had tingling of the fingers of the left hand when dropping off to sleep, but even this has disappeared in the last year. The left arm has grown weaker and more spastic, however. The phenacemide was omitted from his list of medicaments in 1949, and the dose of Mesantoin was decreased in 1951. He has been working steadily and has been granted a driver's license.

Case 2.—A boy was first referred to us by Dr. Norman Reider of San Francisco July 27, 1949, when he was 17 years old. He had had his first attack at age 12. He would walk around in a circle and then fall unconscious to the floor. The frequency of these attacks gradually increased, until they occurred about once weekly. In the later attacks, the patient's facial muscles would twitch, and he would turn his head to one side or the other. In some attacks, he bruised or burned himself. Within a year before he was referred to us he had begun to be rebellious, surly, and ill-behaved, although highly intelligent.

Pneumoencephalograms had been performed, with negative results. Several electroencephalograms had been made, and all showed generalized, paroxysmal, nonspecific dysrhythmia, with occasional invasion of wave and spike complexes. Results of other examinations had been noncontributory. The patient had received the following medicaments daily at various times from eight different physicians, without relief: diphenylhydantoin 0.4 gm., phenobarbital 0.3 gm., Mesantoin 0.6 gm., mephobarbital 0.3 gm., and glutamic acid 20 gm.; in addition, regulation of the acid-base balance had been tried. Our clinical examination, including roentgenograms of the skull and electroencephalograms contributed no new information. Because most of the steps of the standard treatment method had already been carried out and because the patient had come a long distance for treatment, a period of intensive treatment was decided on.

While under the constant watch of special nurses, beginning July 30, 1949, the patient was given 0.9 gm. of diphenylhydantoin and 15 gm. of glutamic acid daily, with enough phenobarbital (up to 0.2 gm. every 2 hours) to keep him drowsy. Inhalations of a carbon dioxide-oxygen mixture were given every hour. In addition, 300,000 units of procaine penicillin was given intramuscularly twice daily. A ketogenic diet was ordered, but by Aug. 3 the patient was too drowsy to eat or drink and had to receive fluids intravenously. He had to be catheterized, and, finally, tidal drainage of the bladder was instituted. On Aug. 6, diphenylhydantoin and phenobarbital administration was stopped, but the patient did not awaken until Aug. 11.

This period was utilized for rapid determination of optimum medication, a procedure that was at that time in process of development. A comparison of records made it clear that of the three drugs tested, trimethadione in a dose of 2 gm. had the greatest effect on the slow waves, but diphenylhydantoin in a dose of 1 gm. and Mesantoin in a dose of 1 gm. also produced substantial improvement. Phenobarbital produced minimal improvement and phenacemide none.

On awaking from this period of narcosis, the patient rapidly regained normal vigor and alertness. On discharge, diphenylhydantoin 0.5 gm. and trimethadione 0.3 gm. daily was prescribed. From that time, the patient has had no seizures of any kind or periodic dullness. His irritability rapidly disappeared. He was somewhat sensitive to bright lights, and this symptom was overcome by reduction in the dose of trimethadione. The patient has recently married and is attending college.

Case 3.—A 35-year-old man was first referred to one of us (T. J. P.) by Dr. Wilder Penfield in 1944. Convulsive seizures had developed in this man at the age of 7 years, but with phenobarbital medication he had had a remission at the age of 13, which lasted 4 years. Seizures then recurred, with a prodrome of generalized weakness and nausea as well as hesitation in speech and, occasionally, diarrhea. They occurred at irregular intervals, on an average of four per year. During some seizures, the patient sustained bruises and cuts about the head. He had been given phenobarbital and diphenylhydantoin.

General physical and neurological examinations revealed nothing of apparent significance. Electroencephalograms taken at the Montreal Neurological Institute showed "bisynchronous wave and spike disorder of moderate severity." This examination has since been repeated at intervals, and the results have been uniformly the same. Results of other routine laboratory studies have been noncontributory.

The patient's dose of diphenylhydantoin was systematically increased to the tolerance level (0.4 gm. daily), and regular exercise was prescribed. He improved greatly, and, except for occasional lapses in medication during intercurrent illness, was seizure-free for five years. During this period, he got married, obtained a driver's license, and worked steadily as a broker. In 1947, he began to have auras of seizures, and Mesantoin, 0.1 gm. daily, was added to his drug regimen. Further increases in medication resulted in ataxia. During 1948 and 1949, the patient had four seizures and finally lost his job. In May, 1949, his wife filed suit for divorce, and he went into a severe depression and had to be institutionalized. He came to Los Angeles in July, 1949, for a reconsideration of treatment, but the seizures continued even when he was taking subtoxic doses of his medicine. Finally, the intensive treatment was suggested to him and was begun Aug. 19, 1949.

While under the constant supervision of special nurses, the patient was given 0.9 gm. of diphenylhydantoin and 15 gm. of glutamic acid daily and enough phenobarbital, up to 0.2 gm. every two hours, to keep him drowsy. He was given inhalations of a carbon dioxide-oxygen mixture for five minutes every hour. A ketogenic diet was prescribed, but by Aug. 22 he was to sleepy to eat or drink. As he did not void spontaneously he had to be catheterized, and finally tidal drainage was instituted. Dihydrostreptomycin, 0.3 gm., and penicillin, 50,000 units, were given every three hours. Intravenous injections of 5% glucose solution were given to prevent dehydration.

On Aug. 24, the administration of phenobarbital was discontinued, and the period of recovery was used for a modified rapid determination of optimum medication as used at that time. This showed clearly that trimethadione had the greatest normalizing effect on the patient's dysrhythmia with phenobarbital next best and Mesantoin third. Diphenylhydantoin and phenacemide showed little effect on the record. Therefore 0.8 gm. of Mesantoin and 0.3 gm. of trimethadione daily was prescribed. Up to the following February, the patient had five seizures, at longer and longer intervals, but has had none since then. Meanwhile, he has completed the necessary work and received the degree of master of arts. On his own initiative, he gradually reduced and finally omitted all of his medication up to February, 1953, when he began taking the drugs again. It seems to us unlikely that this striking improvement can be ascribed to emotional causes, since his life is still filled with disappointments and frustrations.

Case 4.—An incapacitated business man, 48 years old, was first seen as a private patient July 11, 1950. He had been generally well and had worked hard until 1940, when he began to have seizures, with sudden loss of consciousness, falling, twitching of the extremities, and sometimes foaming at the mouth. They lasted as long as four minutes and occurred at irregular intervals; he never had less than 4 and had as many as 17 a year. Most attacks were preceded by an aura of a sensation of flushing of the face, which often occurred also without definite attacks, sometimes as often as 23 times a day. Within a year of the onset of his symptoms, the patient was seen at a well-known clinic in another city, where a ventriculogram was made and a left-sided exploratory craniotomy was performed. After the craniotomy, he had frequent paresthesias of the right upper extremity, despite the use of various drugs, including phenobarbital, diphenylhydantoin, and Mesantoin. He dates his complete incapacity from that time. He took 0.4 gm. of phenobarbital daily, and this was later changed to 0.4 gm. of diphenylhydantoin.

For financial reasons, he requested transfer to the outpatient clinic of the Cedars of Lebanon Hospital. There a lumbar puncture was performed, with results within normal limits. An electroencephalogram was made and showed a pronounced dysrhythmia, with a slow wave focus over the left hemisphere. The dose of diphenylhydantoin was gradually increased to the tolerance level, 0.5 gm. daily, and this was supplemented by 0.1 gm. of phenobarbital. This controlled the patient's grand mal seizures, but the frequent focal sensory seizures (up to 10 daily) prevented his working. In the hope of bringing about an economic rehabilitation, a rapid determination of optimum medication was advised. This was begun on Oct. 30, 1950. Phenobarbital was found to have the greatest beneficial effect on the electroencephalogram, but Mesantoin, glutamic acid, and paramethadione produced slight improvement.

Since the patient had already had a long clinical trial with phenobarbital and Mesantoin, the next logical step seemed to be to subject him to a period of narcosis treatment. He was hospitalized for this purpose on Nov. 6. Constant special nursing was provided. He was given 0.3 gm. of phenobarbital orally every two hours until asleep, 1.5 gm. of diphenylhydantoin every eight hours, 10 gm. of glutamic acid every eight hours while able to swallow, inhalations of 10% carbon dioxide, 300,000 units of penicillin daily, and fluids intravenously as needed. He was deeply asleep within two days but could still be persuaded to swallow the diphenylhydantoin capsules. After this, no food was given by mouth. On Nov. 11, while he was still asleep, his temperature arose to 104 F. It was found that his urine was infected. A tidal drainage apparatus was installed, and use of all sedatives was discontinued. The temperature was normal within three days, and the patient gradually recovered consciousness. He was discharged from the hospital Dec. 4, and Mesantoin 0.6 gm., glutamic acid 15 gm., and paramethadione 1.8 gm. daily was prescribed.

The patient has been followed in the clinic. In May, 1951, he had one grand mal attack, and he complained of slight discomfort in the old craniotomy scar. That was his last major attack; on July 1, 1952, he reported that he had had no attacks of any kind for 13 months and was working regularly as a bookkeeper.

A synopsis of the entire series of patients treated by the intensive method is given in the table. It will be seen that seizures are controlled in 66% of patients with difficult, recalcitrant seizures, and in only about 15% can the treatment be considered to have failed. The results compare favorably with those from surgical treatment (see the table).

AVOIDANCE OF COMPLICATIONS IN INTENSIVE TREATMENT

While the cardinal points in intensive treatment were utilized from the first case, experience has caused us to modify the details. It was clear at once that patients receiving the treatment should have a nurse in constant attendance, and this is still required. A suction apparatus should be available. The only serious complication of the treatment was pneumonitis, which was seen in three of the early patients. In all of these, a ketogenic diet and glutamic acid was being given by nasal tube. We then learned to allow ketosis due to starvation to develop and to administer fluids intravenously. In future cases, we plan to give glutamic acid intravenously also. As a further precaution against pneumonitis, we give 300,000 units of procaine penicillin intramuscularly daily. We still feel safer in having a skilled anesthetist available on call, in case intratracheal insufflation or aspiration is required.

As time went on, we learned to induce sleep with massive doses of diphenylhydantoin, usually 4 gm. for an adult. If this does not produce a comfortable relaxation, we give paraldehyde [24] orally or rectally or phenobarbital intramuscularly as a supplement. If the patient is in such deep coma that he cannot swallow, subsequent doses of diphenylhydantoin (usually 1.5 to 2 gm. daily during the period of narcosis) are given in suppositories.

Inhalations of 10% carbon dioxide in 90% oxygen are given by mask for 10 minutes every hour. Perhaps this dose should be increased, at least in some cases. We have tried administration of a lower concentration continuously in a tent, but the gas escapes too rapidly. At present, we are experimenting with continuous administration of low concentrations by means of a special mask. Patients are allowed to void spontaneously. Occasionally, catheterization or tidal drainage is necessary. Defecation is managed with enemas.

As a rule, four days has been taken empirically as a satisfactory duration of deep sleep. When the treatment has been interrupted earlier, the results have seemed less good; when the sleep has continued longer, the risk of complications (pneumonitis and excessive loss of weight) has seemed greater. Usually, all medication is then stopped, and sometimes amphetamine is given to shorten the period of awakening, which is often a difficult one, since the patient may be delirious. If necessary, paraldehyde is given to control excitement. As the patient approaches a normal state, his preoperative medication is begun again and continued indefinitely.

COMMENT

Even in the most successful cases, favorable results may not be seen immediately. Sometimes there is an actual exacerbation of preexisting behavior disorders, which lasted in one case as long as six weeks. Sometimes, also, the patient will have an isolated seizure within three months after the intensive treatment, then will have no more. The results in such cases are considered to be successful.

A long period of freedom from attacks was followed by relapse in three cases. One was that in the patient described in case 1, the first in the series. Since having a second course of treatment, the patient has been seizure-free and working for four years. In another case, a repetition of the treatment moderated but did not control the seizures. In the third, the attacks have remained under control for over a year. Relapse occurred in a fourth patient, who was placed in an institution, where her maintenance medication was discontinued.

There was clear evidence of a gross lesion of the brain in seven patients. In three, craniotomies had been carried out. In others, "spikes" were demonstrated in the temporal region in an electroencephalogram taken during sleep. Such patients may be considered candidates for temporal lobectomy. It has, however, been our feeling that it is more conservative to administer the intensive treatment first. If this is unsuccessful in patients in whom surgical procedures seem indicated, we hope to carry them out. There has seemed to be little difference in results obtained between the cases in which the epilepsy was presumably symptomatic and those in which it was cryptogenic. The worst results were obtained in seven patients who had severe deterioration. Among these cases two complete failures occurred, but there were also three cases in which gratifying successes were obtained.

While no patients in this series have died, there certainly is some potential risk in the treatment. Prolonged narcosis for other purposes has resulted in an appreciable mortality, which might be decreased by the precautions now available (avoidance of gavage, use of suction and carbon dioxide inhalations, and administration of antibiotics). This is necessarily an expensive treatment. A two week stay in the hospital, with continuous special nursing, should be provided for, and this period occasionally is exceeded. The expense might be greatly diminished if the treatment were given in special institutions or sanatoriums rather than in general hospitals and if one or two nurses could take care of a group of patients undergoing treatment simultaneously. Despite these disadvantages, most patients whose seizures are uncontrolled accept the treatment gladly.

SUMMARY

An outline of rules for the conduct of the standard ambulatory treatment of epilepsy, as employed by the authors, is given. In cases in which circumstances have permitted these rules to be followed strictly to their conclusion, as high as 56% of patients have been maintained seizure-free for significant periods. Even among patients in whom the treatment has been only partially carried out but has been continued for more than a year, 68% are free of major seizures and are also able to work or go to school.

In the 25 patients unrelieved by the complete standard treatment as outlined, a new form of intensive, or narcosis, treatment has been administered. This consists of the administration of massive doses (up to 4 gm. daily) of diphenylhydantoin, sometimes combined with paraldehyde or another soporific. Ketosis from starvation is allowed to develop, and the patient is given inhalations of a carbon dioxide-oxygen mixture every hour. Other details of treatment and precautions necessary are described. The period of sleep usually lasts four days and the entire treatment about two weeks. Following such treatment, 64% of patients previously unrelieved by the standard treatment have been maintained seizure-free. In the entire series of 75 patients, attacks were finally controlled in 58 (77%).

450 N. Bedford Dr. (Dr. Putnam).

Education for Professional Services.—Since Plato first wrote of the necessity for educating men to wisdom, scholars and thinkers throughout the Western world have repeated his message again and again. . . . But today our educational system is fragmented, stressing occupational values, and in danger of letting our civilization follow the path, like Rome and Athens, to decay and destruction. . . . The modern barbarians do not destroy science and technology, they do not wipe out the machine values but instead convert them into terrible forces of evil and death so that those who would resist their mad rush must out-do them in ruthlessness. What they do destroy with devastating thoroughness is the liberal culture of the people. They destroy their roots into the past, their libraries, their free press, their religion, their belief in the essential dignity of man. In short—destroy the education which makes men free. . . . It seems self evident that one of the elementary functions of primary and secondary education is to inculcate the desire to read and to develop at least the rudiments of taste for the literature of our own tongue. That we fail to accomplish this in any large measure is, I believe, the conviction of most men who teach in college and university and are thus in a position to evaluate the accomplishment of the schools. . . . The bald fact is that we, as a people, no longer hold liberal education in high regard; we do not think very well of the education which nourishes man's spirit. Instead, accepting the pragmatic utilitarianism of our day, we have filled the student's time with whatever seemed to him and to his parents to be most immediately profitable; the vocationalized, the specialized, the elective and the electric, with the transient fads and interests of the day. We have established no standards, acknowledged no immutable values and adhered to no common faith. With amazing arrogance we have turned our backs on the past, thus ignoring Santayana's wise observation that "Those who cannot remember the past are condemned to repeat it." With sublime faith in the belief that in this new age of science and enlightenment man's salvation would be achieved with slide rule and analytic balance, we have piled specialization upon specialization with the inevitable result—fragmentation of education.—S. Dorst, M.D., Education for Professional Services, *The Pharos of Alpha Omega Alpha Honor Medical Society*, May, 1953.

ANESTHESIOLOGIST'S RESPONSIBILITY TO THE PATIENT

CHAIRMAN'S ADDRESS

R. J. Whitacre, M.D., Cleveland

Anesthesiology is on the threshold of its greatest contributions to the safety and mental well-being of the patient. In the past, the initial responsibility of the anesthesiologist was to make the patient comfortable and to provide adequate muscular relaxation and reflex depression during surgery. These two objectives are being accomplished in the vast majority of operations; however, the obligations of the anesthesiologist are now distributed over a wider area. Greater attention must be given to the broader, and perhaps more important, aspects of patient care. Successful surgery defeats its own end if the anesthesia service is deficient. I am confident that in the future greater emphasis will be placed on safety to the patient and that more attention will be devoted to the understanding of the patient's problems. My discussion will be limited to these two points. Measures to decrease the danger of surgery and to increase the satisfaction of the patient are of fundamental importance to his welfare and are essential to the development and progress of anesthesiology.

INFORMATION REQUIRED

During the past 20 years, anesthesiology has progressed through several interesting phases. Opinions have differed widely regarding the importance of anesthesiology and the pattern that should be followed in its application. As in most phases of medical care, time and experience will eventually dictate the proper solution to our problems. The history of medicine has repeatedly shown that if it is possible to devote more attention to the factors of fundamental importance, we will more readily obtain our objective, better care of the patient.

The safety of anesthesia administration requires a particular and intimate consideration, because many of the inherent dangers are not adequately understood. Regrettably, we are handicapped by a deficiency of factual information about complications and deaths that occur during and after anesthesia. While many exhaustive surveys and analytical reports are published annually on a great variety of medical subjects, there is an unfortunate lack of comparable material on the hazards related to anesthesia. Perhaps because the personal experience of each surgeon or anesthesiologist is necessarily limited, the importance of anesthesia as a cause of morbidity and mortality is often underestimated.

During the past decade, several factors have forced us to revise our opinion of the importance of the dangers associated with anesthesia. One factor is the great increase in the number of elective operations on good risk patients. A fatality in this group naturally causes greater public and professional concern. There also has been a definite increase in the number of complex and technically difficult surgical procedures of longer duration. The successful outcome of these operations is more than ever dependent on the quality of the anesthesia administration. The third change is that larger numbers of poor risk patients benefit from the advances in surgical practice. Many of these patients would have been considered inoperable a few years ago. The need of precautionary measures and more painstaking anesthesia care for such patients is obvious. Many of these developments have occurred so swiftly that we have failed to appreciate the necessity for careful evaluation of the effects of anesthesia. A thorough understanding and analysis of these problems are vital if we are to avoid a false sense of security regarding the risk accompanying anesthesia.

The advice of every anesthesiologist is sought at one time or another regarding problems in his field. As consultants, we sometimes mislead those who seek our advice by stating or implying that the use of certain drugs or techniques will eliminate the danger of anesthesia. The impression is often gained that we, the consultants, do not encounter difficulties. The fact is, a discussion within any group of anesthesiologists with substantial clinical experience soon discloses that few anesthesia complications ever find their way into the literature.

Another indication of the reluctance of anesthesiologists and surgeons to present the problems encountered in the operating room has been the difficulty experienced by those who have endeavored to establish anesthesia study commissions. Many years ago, we were impressed with the potential value of the Anesthesia Study Commission established in Philadelphia under the direction of Dr. Henry Ruth. About 14 years ago, when we began an effort to study anesthesia problems systematically on a regional level, the prevailing attitude varied from indifference to active opposition.

The cooperation of clinicians has vastly increased in recent years. More factual information is necessary, however, before we can evaluate the real importance of anesthesia with a reasonable degree of accuracy. The nature of most anesthesia complications is such that great care must be exercised to avoid apprehension or loss of public confidence. Because it is our duty to provide the greatest degree of safety for every patient who enters the operating room, no one should deceive himself about the actual dangers associated with anesthesia.

MORE ANESTHESIOLOGISTS NEEDED

Fortunately, great progress has been made toward realization of the anesthesiologist's foremost ambition, making anesthesia safe. This progress has included the development of new drugs, new techniques, and better understanding of the basic sciences as they relate to anesthesiology. But a factor of equal importance is the

---

From the Department of Anesthesiology, Huron Road Hospital.

Read before the Section on Anesthesiology at the 102nd Annual Session of the American Medical Association, New York, June 3, 1953.

application of all available knowledge to each patient. This can be accomplished only by a larger number of qualified anesthesiologists. This need is emphasized further by the increased number of operating room problems that cannot be managed effectively unless the anesthesiologist has one or more associates to assist him.

Another sphere with which we are concerned is the obligation inherent in the patient-physician relationship. This includes sympathetic understanding of the patient as well as professional evaluation of his condition and his requirements in relation to adequate preparation for impending surgery. From the patient's point of view, the anesthesiologist's preoperative visits provide the personal consideration that results in greater confidence, understanding, and freedom from fear. While it may not be generally conceded that the patient requires an explanation of the type of anesthesia to be administered, there can be no doubt that a candid response by the physician to intelligent questions will prove beneficial. If the patient is apprehensive about a certain anesthetic, this should be taken into consideration and the prejudice respected if possible. An anxious and unrelaxed state induced by uncertainty is harmful and disturbing. The patient should be enlightened regarding the procedure ahead and the reasons for certain restrictions.

There are many instances in which timely preoperative attention has meant the difference between life and death. Greater safety in the operating room will not be achieved until the anesthesiologist can discharge his obligation toward each patient and his problems. Postoperative visits result in better supervision of the physical needs of the patient. In addition, they foster good will. Preoperative and postoperative visits are a phase of anesthesia service that is of great importance, but its benefits will not be realized by all patients until there are greater numbers of trained anesthesiologists.

Only by increasing our numbers can the obsolete standards of 15 or 20 years ago be discarded. At that time, the hospital staff that included one anesthesiologist was considered adequately staffed. This was a great step forward; however, under that system personalized service was impossible. Today there is no valid reason for every person entering the operating room not receiving expert attention. This responsibility to the patient can only be fulfilled if we attract enough physicians and train them to be competent anesthesiologists.

The number of resident training programs was limited in the past. This made it difficult to provide anesthesia instruction to a sufficient number of physicians. This defect has now been remedied, and, at the present time, there is no shortage of educational facilities. The problem now is to find ways and means of interesting a greater number of physicians in the practice of anesthesiology. I do not mean to infer that there is a decreased interest in anesthesiology. The situation is one in which the demand for qualified anesthesiologists is growing so rapidly that we are unable to keep pace with it.

Perhaps we should consider the successful manner in which so many well-trained surgeons were produced. This was accomplished by making surgery attractive to the young physician. Since this field offered ample professional recognition and incentive, adequate numbers of competent surgeons are now available in virtually every community in the country. If we are to meet our responsibility to the patient by providing a degree of anesthesia service comparable to the progress made in surgery, the obvious approach is to make sure the incentives and opportunities provided by our specialty attract an ever-increasing number of physicians. Any attempt to induce greater numbers of capable men to study anesthesiology is doomed to failure unless it places proper emphasis on professional prestige and community esteem. We know there is sufficient stimulus from a scientific point of view. There are probably those who would maintain that this is the only inducement needed to attract men of high caliber. I do not believe that this premise will effect a satisfactory solution. Recognition and opportunities are powerful incentives to provide outstanding service. When the practical benefits of the study of anesthesiology are more apparent and less controversial, the problem of procuring the right type of applicant will be resolved.

Lay and medical people alike have questioned the relationship between the program of attracting young men and better care of the patient. The critics of the broad policies outlined here have, however, suggested no constructive plan to fill the need for an adequate number of anesthesiologists. The solution demands the thoughtful and cooperative interest of everyone concerned because it has the fundamental purpose of improving the welfare of the patient. The soluton to our problem, in brief, calls for the elementary application of basic American principles of recognition for merit, consistent with the policies that have made American medicine so successful. All the suggestions proposed to solve the problems by other means have proved ineffectual in meeting the long-range needs.

To appreciate the significance and character of the changes brought about in the status of anesthesiology, it is necessary to gain a perspective of its development, particularly as it relates to care of the patient. The quality of the service rendered by the anesthesiologist to each patient is the factor that will determine the future progress of the specialty. The time is definitely past when temporary expediencies provide a satisfactory answer for poor or even mediocre anesthesia service.

CONCLUSION

In meeting the anesthesiologist's responsibility to the patient, three factors should be considered: 1. Expert anesthesia service should be available to every patient in every hospital, and providing this care is our primary responsibility. 2. The results of research and clinical investigation can be applied with full benefit to each patient only if a great many more physicians are attracted to anesthesiology. 3. Maintaining and building a better physician-patient relationship during the orderly growth of anesthesiology is the most effective way to improve the quality of anesthesia service.

13951 Terrace Rd. (12).

CARDIAC RESUSCITATION

Sanford E. Leeds, M.D., San Francisco

The subject of cardiac resuscitation is of great importance because delay of only a few minutes in beginning treatment may make the difference between a dead or disabled patient and a living and well one. It is important to have a predetermined plan of action and to have equipment available in order to avoid delay. Cardiac arrest or ventricular fibrillation may occur during any surgical procedure, even in a tonsillectomy with the patient under local anesthesia. It can occur during bronchoscopy or esophagoscopy; hence, anyone who performs major or minor surgery or anesthesia must be familiar with the technique of cardiac resuscitation. The cardiologist or internist who performs catheterization of the heart not only should be aware of the possibility that cardiac arrest or ventricular fibrillation may develop during the procedure but also must be prepared to treat it, since there is usually no time to call someone else to resuscitate the patient. As yet, I am not aware of any case that has developed on a hospital ward in which the patient has been successfully resuscitated.[1] This indicates the need for preparation to handle this emergency when it occurs outside of the operating room by keeping available a resuscitation kit. The kit should contain a scalpel and other instruments, some drugs with syringes and needles, a means of providing oxygen under pressure for artificial respiration, and a defibrillator. Such mobile equipment is already available in some hospitals.

There appears to be an increase in the number of patients who require resuscitation. This increase may be due to the large number of patients undergoing anesthesia, catheterization of the heart, and thoracic and, particularly, cardiac surgery. Since an effective treatment is now available, surgeons, anesthetists, members of the house staff, and others are more alert to the development of this complication and the need for treatment without delay; hence, more cases are being reported and quoted than formerly. Although "anesthetic deaths" were recognized shortly after the introduction of anesthesia 100 years ago, it is only recently that the causes of cardiac arrest and ventricular fibrillation have become better understood and a satisfactory treatment evolved. In fact, it was only five years ago that the first patient with ventricular fibrillation proved by electrocardiography was resuscitated.[2] It is now appreciated that the major causes of cardiac asystole or ventricular fibrillation are anoxia of the myocardium and reflex mechanisms [3] initiated through vagus stimulation. The best preventive is the provision of a constant stream of highly oxygenated blood through the coronary arteries. Anything that interferes with the airway or depresses respiration, such as overdosage or excessive use of multiple anesthetic agents, may bring on asystole and should be avoided.

Although the treatment of cardiac arrest and ventricular fibrillation is well established, there is much to be learned about the cause and prevention of this catastrophe. More knowledge is needed of the physiology of the myocardium, particularly with reference to the use of drugs, the magnitude and duration of the optimum electric shock needed to provide the proper "effective" current, and the factors that increase or diminish irritability of the myocardium. Because of the fortunately small number of arrests that occur (estimated at 1 in 3,000 operations [4]), it is difficult to acquire statistics regarding the effectiveness of different drugs, electrodes, or shocks under various conditions. It is, therefore, important to record carefully all observations made of clinical cases and publish them, as many hospitals are now doing. There is much information available from animal experiments in this field, and more is being accumulated, but there are certainly species differences in behavior that must be taken into account when knowledge derived from the laboratory is applied to human subjects.

Some of the facts to be acquired concern the electrical characteristics of the heart. The resistance of the dog's heart, for example, was only recently accurately measured by means of oscillographic equipment.[5] That of the living human heart has not to my knowledge been measured. Although the electric shocks and drugs that are in use are effective in most instances, it must be remembered that they have largely been determined empirically and that there is still much to be learned about cardiac resuscitation.

TECHNIQUE OF CARDIAC RESUSCITATION

When cardiac asystole develops during the induction of anesthesia or during an operation, it is usually the anesthetist who first becomes aware of the absence of the pulse and blood pressure. The surgeon can verify this quickly by noting whether there are pulsations in an artery in or near the operative field. If the heart is in the field, the surgeon may be the first to observe that it has stopped, and he may notify the anesthetist. When cardiac arrest occurs, the vital functions of circulation and respiration must be maintained artificially until the heart can resume its normal function if the patient is to survive with an intact cerebrum.

The anesthetist starts artificial respiration through a mask or endotracheal tube (preferably the latter) and supplies 100% oxygen with positive pressure. Should cardiac arrest develop on the ward or in some location away from the operating room, mouth-to-mouth forced respirations may be carried on until an anesthesia machine or other respirator can be brought to the scene.

From the Harold Brunn Institute for Cardiovascular Research, Mount Zion Hospital.

Read at the 6th Clinical Session of the American Medical Association, Denver, Dec. 5, 1952.

The studies on which this paper was based were aided by a grant from the United States Public Health Service.

[1] Johnson, J., and Kirby, C. K.: The Surgical Treatment of Ventricular Fibrillation, Ann. Surg. **134**: 672, 1951.

[2] Beck, C. S.; Pritchard, W. H., and Feil, H. S.: Ventricular Fibrillation of Long Duration Abolished by Electric Shock, J. A. M. A. **135**: 985 (Dec. 13) 1947.

[3] Sloan, H. E.: The Vagus Nerve in Cardiac Arrest: Effect of Hypercapula, Hypoxia and Asphyxia on Reflex Inhibition of Heart, Surg., Gynec. & Obst. **91**: 257, 1950.

[4] Ament, R.; Papper, E. M., and Rovenstine, E. A.: Cardiac Arrest During Anesthesia; Review of Cases, Ann. Surg. **134**: 220, 1951.

[5] Mooslin, K. E.; Mackay, R. S., and Leeds, S. E.: Determination of Electrical Currents Which Will Produce Ventricular Fibrillation and Defibrillation in Dogs, presented at the Forum on Fundamental Surgical Problems, American College of Surgeons, Chicago, Oct. 18, 1949.

The anesthetist or some other person designated to perform the task keeps track of the time and notes the time at which procedures are started or drugs administered.

The surgeon may take a few seconds to prick the heart with a needle mounted on an empty syringe in order to see if it will resume a normal rhythm. Pricking the heart with a needle is indicated if asystole is present but is of no use if there is ventricular fibrillation. Since fibrillation is present in only a small percentage of cases (estimated at 10%), the maneuver is permissible but only if not more than 10 or 15 seconds are required.

After confirming the absence of arterial pulsations, the surgeon exposes the chest and makes an incision in the fourth or fifth left intercostal space reaching from the left border of the sternum to the axilla (fig. 1*A*). There is no bleeding, and the incision is quickly carried through the pleura; care should be taken to avoid injury to the left lung. The surgeon inserts his hand into the chest and starts massage. The heart is firmly squeezed in order to express as much blood as possible by each contraction of the hand. The rate of contraction should be as rapid as possible, but each contraction should be completely effective.[1] In cases in which the heart is small, as that of an infant, the rate can be maintained easily at 80 to 100 per minute, while, if the heart is larger, the rate will probably be slower. Occasionally it may be necessary to compress the heart with two hands. Effective massage is tiring and the surgeon should be relieved by an assistant so that efficiency is maintained. Proficiency in massage may be acquired by practice on experimental animals. It is easier to insert the hand into the chest if an assistant holds the fourth and fifth ribs apart until a self-retaining rib spreader can be inserted (fig. 1*B*). Additional exposure is gained if the adjacent costal cartilages are divided. If cardiac massage is not effective with the pericardium intact, the pericardium should be opened so that the surgeon may better grasp the ventricles with his hand. Should bleeding from the chest wall occur during massage of the heart, the assistant may clamp and tie the vessels. The skin may be painted with an antiseptic solution, and sterile towels may be applied after massage is initiated.

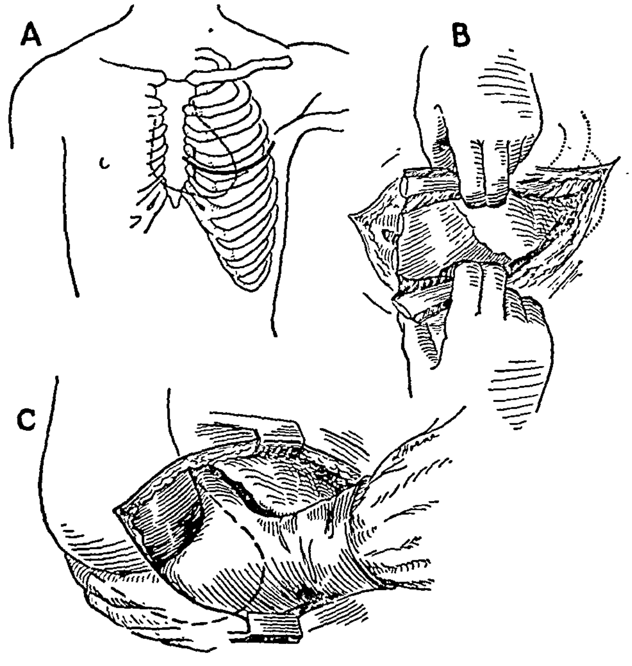


Fig. 1.—*A*, incision in fourth or fifth left intercostal space extends from the sternum to the axilla. *B*, assistant holds the ribs apart until a rib retractor is available. One or two adjacent rib cartilages may be divided to improve the exposure. *C*, surgeon grasps the heart and compresses it rhythmically 80 to 100 times per minute.

The need for haste is plain. The anesthetist or surgeon may not discover the absence of arterial pulsations for a minute or more. It has been determined experimentally[6] that the central nervous system is damaged after four to six minutes of anoxemia. A rule of thumb is that the circulation and respiration must be started artificially before two or three minutes have elapsed if the patient is to survive without damage to the brain.

Once respiration and circulation are maintained artificially, the patient's condition improves, the pulse and blood pressure are obtainable, and there is no longer need for haste. A case was reported by Beck[2] in which massage was carried on for an hour before the heart resumed its normal function; no permanent injury to the heart occurred. One may look for ventricular fibrillation at this time. The worm-like contractions of the myocardium may be seen through the thin pericardium, or, if there is any doubt, the pericardium may be opened.

While respirations and cardiac massage are being maintained, fluids, such as a solution of 5% dextrose in distilled water or blood, should be administered intravenously. These fluids will increase the return of venous blood to the heart and support the circulation.

The next problem confronting the resuscitation team is that of returning the heart to a normal rhythm. When the heart is in asystole, it may stay in that condition for a variable length of time. According to present knowledge, it will either return to normal rhythm or change to ventricular fibrillation. If the heart returns to a normal rhythm that is weak with poor contractions, epinephrine should be given in amounts of 0.5 to 1 cc. of a solution made by mixing 1 cc. of a 1:1000 solution with 4 cc. of isotonic sodium chloride solution. This preparation should be injected into the auricle, and injection may be repeated every three minutes. If the heart remains in asystole for 5 or 10 minutes and appears to be losing its tone, epinephrine or calcium chloride may be administered very cautiously in small dosage, since ventricular fibrillation may develop if the irritability of the myocardium is increased. Procaine hydrochloride and procaine amide (Pronestyl) hydrochloride are contraindicated in asystole because they may further depress a myocardium that is not contracting. In adults, atropine should be administered intravenously in amounts of 0.01 grain (0.6 mg.), especially in cases in which the vagovagal reflex appears to be responsible for the arrest.

Mention should be made of the drugs that are useless or contraindicated in cardiac resuscitation. Analeptic and sympathomimetic drugs, such as caffeine, nikethamide (Coramine), pentylenetetrazol (Metrazole), strychnine, ephedrine, amphetamine (Benzedrine), phenylephrine (Neo-Synephrine) hydrochloride, and *p*-(2-aminopropyl) phenol (Paredrine), should not be

---

6. Weinberger, L. M.; Gibbon, M. H., and Gibbon, J. H., Jr.: Temporary Arrest of the Circulation to the Central Nervous System: I. Physiologic Effects, Arch. Neurol. & Psychiat. 43:615 (April) 1940.

used. Drugs that stimulate the central nervous system increase the oxygen demand; in cases in which there is anoxia, the danger of damage is aggravated. Medicaments such as digitalis and strophanthin act on the auriculoventricular conduction system to increase the refractory period and to slow the rate of conduction; they should also be avoided.

Should ventricular fibrillation develop, single or serial shocks may be applied with the defibrillator prior to the administration of procaine. Should the shocks fail to produce a normal rhythm, procaine or procaine amide hydrochloride should be given to aid in defibrillation. Procaine hydrochloride is administered, 10 cc. of a 1% solution, into the auricle; 200 mg. of procaine amide hydrochloride should be administered either intravenously or directly into the auricle. Ventricular fibrillation may revert to a normal rhythm with massage alone[7] in human patients. It is doubtful whether this reversion occurs in dogs in which fibrillation has been produced by a weak electric shock. After the administration of procaine or procaine amide hydrochloride electric shocks are again administered with the defibrillator. The defibrillator can be constructed to deliver a shock of 110 volts or 130 volts with a timer that allows the administration of voltages of 0.1 second duration. In order to avoid or minimize damage to the myocardium from burns or other effects, a shock of 110 volts for 0.1 second is given first. If single shocks at the lower voltage are not effective, 5 to 10 serial shocks at one second intervals are administered. The higher voltage of 130 is used if a shock of 110 volts is not effective. If poor contact is made while employing very small electrodes, a shock of even 130 volts may be inadequate because of the high resistance present in the circuit. It is evident that the electrodes and their contact are extremely important. If the pericardium is open and electrodes covered with gauze moistened with sodium chloride solution are pressed firmly against the heart, the shocks are more likely to be effective, since an adequate current will pass through the heart.

Drugs That Are Useful in Cardiac Resuscitation

Drug	Dosage	Indications	Contraindications	Remarks
Epinephrine	0.5 to 2 cc. 1:5,000 solution in auricle	Regular rhythm; weak contractions; cautiously in asystole	Ventricular fibrillation present	Stimulates heart by direct effect on myocardium and conduction system; increases myocardial irritability
Calcium chloride..............	2 to 4 cc. 10% solution in left ventricle	Regular rhythm; weak contractions; cautiously in asystole	Ventricular fibrillation present	Will sometimes revive heart that does not respond to epinephrine *
Procaine hydrochloride.......	10 cc. 1% solution in auricle or 50 to 100 cc. 1% solution intravenously	Ventricular fibrillation that fails to respond to shocks	Asystole present and myocardium flabby	Diminishes irritability of myocardium and conduction system
Procaine amide hydrochloride (Pronestyl)	100 to 200 mg. in auricle or intravenously	Ventricular fibrillation that fails to respond to shocks	Asystole present and myocardium flabby	Diminishes irritability of myocardium and conduction system
Atropine and scopolamine....	.0065 gm. or 0.01 grain intravenously	Cardiac arrest due to vagovagal reflex	Tachycardia present	Block vagal effects on sinoauricular pacemaker
Quinidine	0.2 gm. 4 or 5 times daily, orally	Presence of cardiac arrhythmia preoperatively	Intravenous or intracardiac use	Decreases myocardial excitability and slows conduction of impulses
Barium chloride...............	1 to 2 cc. 0.5% solution	Regular rhythm; weak contractions; cautiously in asystole	Ventricular fibrillation present	Used less frequently than calcium chloride
Potassium chloride...........	0.5 to 5% solution	Ventricular fibrillation; to produce cardiac inhibition	Asystole present or regular contractions weak	Not recommended; electrical defibrillation is probably more efficient and less dangerous

* Kay, J. H., and Blalock, A.: The Use of Calcium Chloride in the Treatment of Cardiac Arrest in Patients, Surg., Gynec. & Obst. 93: 97, 1951.

It has been shown[8] that weak currents below 55 volts and 1 ampere administered to the heart of a normal dog will result in ventricular fibrillation. An effective and safe defibrillating current must be above 55 volts, preferably nearer 110 volts and 2 amperes, if the drop in voltage and amperage across the electrodes caused by the resistance of the tissues or by contacts is not to act as a fibrillating current. For these reasons, voltages below 70 or 80 are extremely dangerous and should not be delivered by any defibrillator intended for use in hospitals. If a timer is incorporated in the defibrillator so that currents lasting 0.1 or 0.5 second are used (preferably the former), no burn will occur even in an infant's heart.

The defibrillating current is effective because it produces cardiac arrest that may be followed by a normal rhythm. By passing a strong shock through the myocardium, all the wayward contractions of the myocardium are stopped, and, once a regular rhythm is resumed, the contractions may be improved, if weak, by the administration of epinephrine. After the heart has resumed a normal rhythm, the chest is closed with absorbable surgical sutures. An underwater seal drain may be used. Oxygen is administered as needed and antibiotics are employed for several days.

THE DEFIBRILLATOR

In order to construct an effective defibrillator, certain basic facts must be known regarding the effects of electric shocks on the heart. Much information has been gained from experiments on dogs.[9] As more data are acquired from cardiac resuscitation in human subjects, the technique may require some modification.

---

[7] Lampson, R. S.; Schaeffer, W. C., and Lincoln, J. R.: Acute Circulatory Arrest from Ventricular Fibrillation for 27 Minutes, with Complete Recovery, J. A. M. A. **137**: 1575 (Aug. 28) 1948.

[8] Leeds, S. E.; Mackay, E. S., and Mooslin, K. E.: Production of Ventricular Fibrillation and Defibrillation in Dogs by Means of Accurately Measured Shocks Across Exposed Heart, Am. J. Physiol. **165**: 179, 1951.

The range of effective voltages and amperages must be known so that only effective currents are delivered to the myocardium. By "effective current" is meant current that actually traverses the myocardium, not current that is delivered by the defibrillator when the electrodes are in direct contact with each other and meet only minimal resistance. Below about 55 volts and 1 ampere, the shock may produce fibrillation in a heart that is beating normally. Weak currents long enough in duration to span an entire cardiac cycle will usually produce fibrillation in both dogs and humans. In order to produce defibrillation, the current must be higher than 55 volts and 1 ampere (demonstrated in dogs). Very strong currents will defibrillate satisfactorily but may burn or otherwise injure the heart; therefore, a current must be selected that will be high enough to be effective but not so high that it will be injurious. Another factor to be considered is the duration of the shock. Weak shocks, if very short (0.1 second or less), will not always cause fibrillation when applied to a heart with a normal rhythm, because they may occur during the refractory period of the cycle in which the shock is not effective. To produce fibrillation, therefore, weak shocks that last through one or more cardiac cycles (0.5 to 1.0 second) should be used. The reverse is true when the optimum duration of a defibrillating current is selected. If defibrillation is desired, both long and short currents are equally effective, but long currents may damage the heart; hence, the shortest current that is effective should be used. It has been determined experimentally that brief currents lasting from 0.1 to 0.5 second are effective and are less apt to cause burns. Wiggers [10] showed that, if single shocks do not result in defibrillation, serial shocks should be used. Five to 10 serial shocks administered for 0.1 second at one second intervals may be successful at times at which a single shock fails. This has been explained by the fact that isolated islands of fibrillation in the myocardium may persist after a single shock but that, after several shocks, the entire myocardium is arrested.

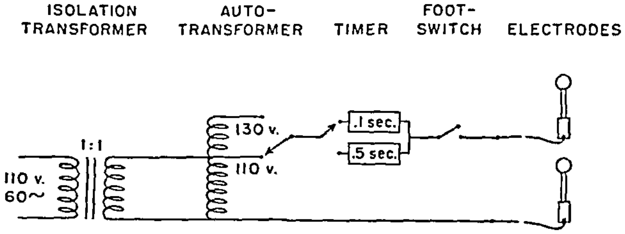


Fig. 2.—Defibrillator including the important component parts.

In a discussion of defibrillation, the final and one of the most important factors to be considered is the electrodes. The electrodes should be as large as can conveniently be placed on the heart so that local heating is minimized and contact resistance is reduced. They should be covered with felt or gauze that may be saturated with sodium chloride solution in order to improve conduction. In order to make the contact as good as possible, the electrodes should be held firmly against the heart on opposite sides of the ventricles. The handles and shafts should be well insulated so that the person holding the electrodes will not receive an accidental shock and so that sparks will not be produced in the operating room. As a further precaution, the back of each electrode should be insulated. In order to avoid shocks to personnel, it is wise for each electrode to be held by a different person each wearing rubber gloves and standing on a dry floor away from the metal operating table. In this way it is almost impossible for them to receive a shock, especially if, in addition, an isolation transformer is used in the circuit of the defibrillator. By using an isolation transformer, a shock could be received only through contact with both electrodes simultaneously during the short period of time that the relay is closed.

The parts of an ideal defibrillator are determined from considerations mentioned earlier in this paper; first, an isolation transformer should be included, since this safety device makes it practically impossible for the person holding an electrode to receive a shock, and, second, the voltages available should be considered. Probably, the minimum voltage should be 110, as use of voltages below this value, even in infants, may result in a fibrillating current if the resistances across the electrodes are too high. The maximum voltage required should be about from 130 to 150 volts. If the defibrillator is built to deliver only one voltage, 130 volts would be the most desirable. With a thorough recognition of the need for large electrodes applied firmly with good contact through saline soaked material, it would appear unnecessary to use voltages higher than 130. If the available electrodes are small, voltages up to 150 might be necessary. If defibrillation does not occur when a shock of 130 volts is administered, it is probably wiser to open the pericardium and to make good contact than to apply extremely high voltages, which in themselves may be harmful to the patient. The limit of 150 volts is arbitrary. Actually the type of study that would determine this figure accurately has not been carried out in human subjects thus far.

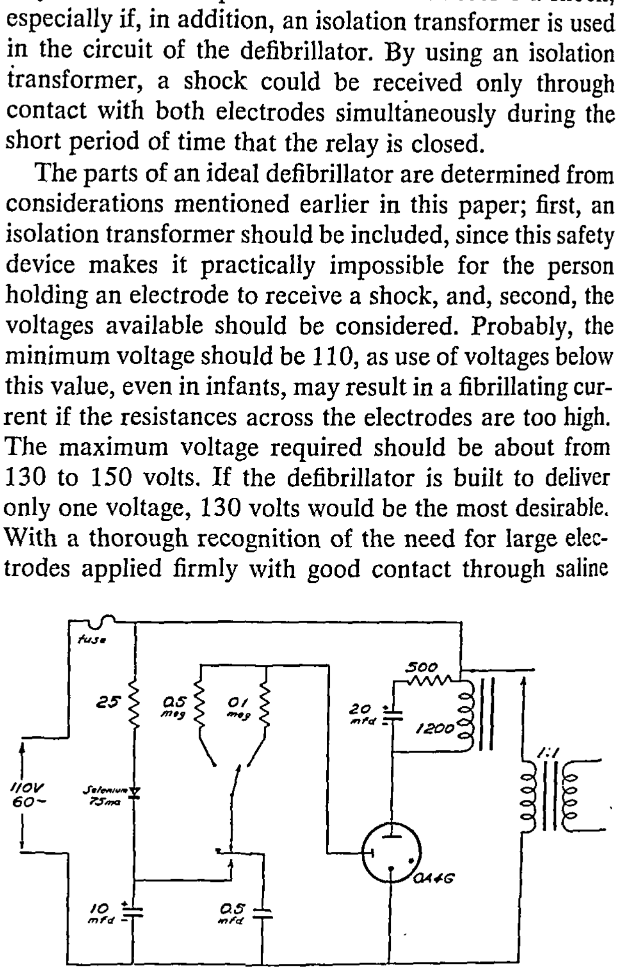


Fig. 3.—Defibrillator circuit devised by Dr. R. S. Mackay. Reproduced from Mackay, R. S.; Moaslin, K. E., and Leeds, S. E.: The Effects of Electric Currents on the Canine Heart with Particular Reference to Ventricular Fibrillation, *Ann. Surg.* **134**: 173 (Aug.) 1951.

---

[9] Mackay, R. S.; Mooslin, K. E., and Leeds, S. E.: The Effects of Electric Currents on the Canine Heart with Particular Reference to Ventricular Fibrillation, Ann. Surg. **134**: 173, 1951. Mooslin, Mackay, and Leeds.[5] Leeds, Mackay, and Mooslin.[8]

[10] Wiggers, C. J.: The Physiologic Basis for Cardiac Resuscitation from Ventricular Fibrillation—Method for Serial Defibrillation, Am. Heart J. **20**: 413, 1940.

As a third part, the ideal defibrillator should include an automatic timer. This is not difficult to construct, and its use is far superior to estimation of the duration of shocks during the sometimes hectic process of cardiac resuscitation. The timer may be set at 0.1 or 0.2 second; longer periods up to 0.5 second are satisfactory but probably not necessary.

Fourth, a foot switch is necessary. The type of switch that discharges the entire shock when the switch is depressed is most satisfactory. As stated above, it is best for the shock to be timed automatically and discharged completely when the switch is stepped on. A spring sets the switch for the next shock as soon as the foot is lifted.

Fifth, the design of the electrodes must be considered. The impression is that any good conductor may be used. Several sizes should be available so that the heart of an infant or of an adult may be accommodated. The smallest should be 5 cm. in diameter and the largest 8 cm. in diameter. The insulation of the handle, shaft, and cord should be adequate to withstand autoclaving. An additional precaution is insulation of the back of each electrode. The electrodes may be covered with felt or they may be wrapped with flat gauze sponges that are tied in place. The felt or gauze should be moistened well with sodium chloride solution before the electrodes are applied to the heart. The defibrillator that has been described is illustrated in figure 2. Diagrams of two different, practical defibrillators are in figures 3 and 4.

RESUSCITATION KIT AND ITS ADJUNCTS

The instruments and drugs necessary or useful in cardiac resuscitation are listed in outline form.

I. Equipment required immediately for establishment of circulation and respiration
  A. Instruments for exposure of the heart; scalpel and self-retaining rib retractor
  B. Oxygen tank with bag and couplings that connect to a tight fitting face mask (preferably with airway). Laryngoscope, mouth gag, and intratracheal catheters and airways of different sizes may be needed
  C. Kreiselman apparatus should be available in all operating rooms if above equipment is not

II. Equipment required after circulation and respiration are established by artificial means
  A. Skin antiseptics and sterile towels, drapes, and gloves
  B. Instruments to control bleeding from chest wound when pulse and blood pressure have returned; hemostats, absorbable surgical sutures, forceps, and scissors
  C. Instruments to open pericardium if necessary to improve massage, verify presence or absence of ventricular fibrillation, or to permit application of electrodes directly to the epicardium; long forceps with teeth and long scissors
  D. Drugs
    1. Procaine hydrochloride, 1% solution
    2. Epinephrine, 1:5,000 solution
    3. Calcium chloride, 10% solution
    4. Procaine amide hydrochloride (Pronestyl)
    5. Atropine
  E. Syringes with needles
  F. Defibrillator unit including sterile electrodes covered with gauze or felt and connecting wires
  G. Instruments, suture material, and catheter to be used in closing the thoracotomy wound

The defibrillator and a sterile pack containing electrodes and connecting wires are the last items that must be available. Although a scalpel and rib spreader could be kept in readiness on each ward or in each minor operating room, it would not be practical to have a respirator or anesthesia machine and a defibrillator in every location in which it might be needed. It would seem wise to keep a complete resuscitation kit and adjunct equipment in readiness at some central point and to depend on mouth-to-mouth breathing to maintain respirations until the equipment can be brought to the patient.

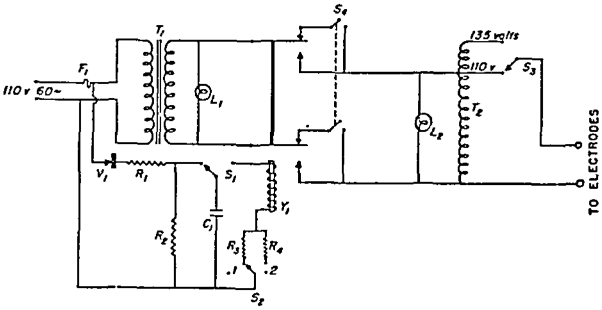


Fig. 4.—Defibrillator circuit devised by Mr. Richard Wexler. This circuit does not contain a vacuum tube.

SUMMARY

1. A technique of cardiac resuscitation is described in detail that includes (*a*) artificial respiration, (*b*) cardiac massage, (*c*) administration of fluids and blood intravenously if indicated, (*d*) administration of drugs, such as epinephrine, calcium chloride, procaine and procaine amide (Pronestyl) hydrochloride, and atropine, and (*e*) defibrillation by means of electric shock.

2. The defibrillator is described in detail. Construction of the defibrillator is discussed with regard to the effects of electric current on the heart. Circuit diagrams of defibrillators are included.

3. An outline of equipment required for cardiac resuscitation based on the technique described is presented. This list is designed to assist in preparation of the resuscitation kit and adjunct equipment.

2211 Post St. (15).

Narcotics and Cancer.—The cancer patient presents a unique problem to the doctor who is called upon to decide when and what pain relieving drugs should be administered. . . . Since patients with cancer are always more or less mentally depressed and subject to periods of despondency, they are much more prone to develop dependency and habituation than are the usual surgical and medical patients. Since this is true, sedation and narcosis when needed as a temporary measure should, if possible, be accomplished by drugs having the minimal amount of habit forming qualities. Following surgery, if morphine or Pantopon must be used, their use should be discontinued as soon as possible. Where narcotics must be continued for a considerable period of time, codeine or Demerol may be satisfactorily substituted for morphine. This will make the discontinuance of narcosis much easier for both the patient and the doctor. Discomfort and mild pain during the course of treatment are best handled with non-narcotic drugs, such as aspirin, acetanilide, and barbiturates, either separately or in combination. Larger doses of aspirin than are usually given when repeated at regular intervals will prove more effective than is usually believed.—E. Callaway, M.D., Narcotics and Cancer, *Georgia Medical Association Journal,* May, 1953.

EVALUATION OF A THYROID PANEL

PRACTICAL APPLICATION OF SCINTILLATION COUNTER IN DIAGNOSIS OF DISEASES OF THE THYROID

T. F. Barrett, M.D., H. Peck, M.D., F. K. Bauer, M.D., R. L. Libby, Ph.D.
and
S. R. Jarrett, R.N., Los Angeles

Since I^{131}, the eight day, half-life isotope of iodine, became available on a large scale, its uptake by the thyroid gland has been used as a diagnostic test in the study of thyroid disorders. The thyroid uptake or diagnostic tracer study is generally afforded equal importance with the determination of serum protein-bound iodine (PBI), the basal metabolic rate, and the serum cholesterol level, the latter mainly in the diagnosis of hypothyroidism.

Recent improvements in instrumentation and particularly the development of the sensitive, gamma detecting scintillation counter [1] have made possible the use of tracer amounts as small as one microcurie of I^{131} for studying thyroid function. This amount is about one-hundreth of the dose that has been commonly used in the past and makes it possible, for the first time, to obtain repeat uptake values without exceeding a safe dosage level. This simple and reliable equipment, which is now commercially available,* makes possible the expeditious processing of a large number of patients in a thyroid diagnostic clinic. The uptake procedure outlined in this report can be carried out by a technician. Many other methods utilizing I^{131} have been suggested for determining thyroid function,[2] but many of these are too complex to be carried out in a simple and rapid manner in a thyroid clinic.

This report presents the results of a pilot study designed to evaluate the I^{131} tracer test (thyroid uptake) in a large Veterans Administration general medical and surgical hospital in which the patients are, for the most part, men. The hospital is located in an area in which goiter is not endemic.

METHODS

The instrumentation has already been described in detail.[3] Briefly, standardized doses of 2 μc of carrier-free I^{131} are prepared in capsule form.[4] The use of the dosage in capsule form has a number of advantages, particularly with respect to the ease of transportation from the standardization laboratory to the patient and the elimination of possible contamination through spillage. The patient is permitted a light breakfast and is given the I^{131} capsule with a small amount of tap water. Uptake studies are performed 6 and 24 hours after administration of the dose. The determination of the amount of I^{131} collected by the thyroid gland is carried out as follows: The patient is seated in a dental chair, and the chair is titled backward so that the patient's neck is in a horizontal position. The isthmus of the thyroid gland is located by measuring 5 cm. downward from the notch of the thyroid cartilage. The scintillation tube is then lowered over the thyroid area so that the center of the aluminum window of the tube is 5.6 cm. above the isthmus. Background counts are obtained over the knee and are subtracted from the thyroid counts to obtain the net count over the thyroid. This net count is expressed as a per cent of the administered dose count obtained under the same geometric conditions and represents the per cent uptake by the gland. A request slip should accompany the patient and should state the reason for which the test was requested, the tentative clinical diagnosis, and all medication that the patient has been receiving. Every effort is made to determine whether or not the patient has received desiccated thyroid, iodine containing medication, or iodized oils used in roentgenographic diagnosis, since these markedly modify the thyroid uptake.

It is emphasized that no pressure whatsoever was placed on the house staff for the referral of patients. At the time this pilot study was established, members of the house staff were encouraged to avail themselves of the facilities of the thyroid diagnostic clinic at their discretion. Patients in whom there was doubt as to the presence of thyroid dysfunction were referred. These included patients with symptoms such as nervousness, tiredness, and unexplained weight loss or weight gain. Also included were patients with heart disease of unexplained cause and brittle diabetics. Each of the house officers or attending physicians was thus a referring physician, and the situation was comparable to the relationship of private physician to a commercial laboratory. This method was felt to be vastly preferable to one in which only one physician examines all patients to be tested and the clinical impression depends on his index of suspicion and clinical acumen.[2b]

Basal metabolic rate, serum protein-bound iodine, and serum cholesterol determinations, according to the techniques of Barker and Humphrey [5] and Kingsley and Schaffert,[6] were performed at the same time or a few days after the I^{131} tracer test. The results obtained are analyzed with respect to: (1) accuracy of the tracer study as a routine clinical test to supplement the referring physician's clinical impression; (2) comparative diagnostic value of the tracer study and the other established thyroid function tests; (3) simplicity, practicability, and possible application of the tracer study in smaller hospitals to the exclusion of some of the other thyroid function tests.

Because of lack of space, some of the bibliographic footnotes have been omitted from THE JOURNAL and will appear in the authors' reprints.

From the Radioisotope Unit, Veterans Administration Center, Los Angeles, and the departments of medicine and radiology, University of California Medical Center, Los Angeles.

[1] Allen, H. C., Jr.; Libby, R. L., and Cassen, B.: The Scintillation Counter in Clinical Studies of Human Thyroid Physiology Using I^{131}, J. Clin. Endocrinol. **11:** 492, 1951.

* R-C Scientific Instrument Company, Inc., 335 Culver Blvd., Playa del Rey, Calif.

[3] Bauer, F. K.; Goodwin, W. E., and Libby, R. L.: Symposium on Recent Advances in Medicine: Radioiodine in the Diagnosis of Thyroid Disorders, M. Clin. North America **36:** 981, 1952. Footnote 1.

[5] Barker, S. B., and Humphrey, M. J.: Clinical Determination of Protein-Bound Iodine in Plasma, J. Clin. Endocrinol. **10:** 1136, 1950.

[6] Kingsley, G. R., and Schaffert, R. R.: Determination of Free and Total Cholesterol by Direct Chloroform Extraction, J. Biol. Chem. **180:** 315, 1949.

MATERIAL

One hundred sixteen healthy control subjects were given an oral tracer dose of 2 μc of carrier-free I^{131}. The range of uptake values (7% to 23% in 6 hours and 12% to 35% in 24 hours) correlates well with those found by other groups of investigators[7] (table 1). As illustrated in table 1, 273 tests were performed on 213 patients. Of these 273 tracer studies, there were 195 normal tests and 78 abnormal tests, according to our criteria. The breakdown of these abnormal tests reveals that 17 were higher and 61 lower than the normal control values. The breakdown of the tests with values above normal (tables 2 and 3) shows that all but one can be explained on the basis of hyperthyroidism. The one patient (patient 17, table 3) with uptakes of 44% and 46% had normal protein-bound iodine and high serum cholesterol values. He suffered from hypertensive cardiovascular disease and had had a cerebral vascular accident. He was also in cardiac decompensation, on a low sodium diet, and receiving digitalis. Clinically, there was no evidence of hyperthyroidism. He had received potassium thiocyanate tablets two months prior to the test, but whether this accounts for the high uptake cannot be stated definitely. The rate of uptake in the same patient, as evidenced by the six hour determination, was normal. In this series of patients, no other high uptake that could not be explained was found.

TABLE 1.—*Results of Radioactive Iodine Uptake Tests*

	Men	Women	Total
Voluntary healthy controls	55	61	116
Number of patients	165	48	213
Number of tests on patients	211	62	273
Number of tests within normal range	147	48	195
Number of tests outside normal range (7 to 23% at 6 hr. 12 to 35% at 24 hr.)	64	14	78
Above normal	16	1	17
Below normal	48	13	61

The breakdown of low uptakes is given in tables 4 and 5. False low values due to "contamination" of the patient with thyroid medication or iodine containing compounds were more frequent than those due to hypothyroidism, adenomas, or thyroiditis. The factors responsible for uptake values below normal included thyroid medication (11 patients), iodine in Lugol's solution, potassium iodide, hydriodic acid, kelp, patent medicine tonics, and cough syrups (9 patients), dyes used in roentgenographic procedures (4 patients), and iodochlorohydroxyquinoline (Vioform) (1 patient). One patient with bromide intoxication had a low uptake and a high bromide level in the serum. Unfortunately, this patient failed to return for a repeat tracer study several weeks later. In several patients with congestive heart failure, it was observed that, although the total amount of I^{131} accumulated in the thyroid gland was within the normal range, the rate of uptake was slow (six hour determination). These are preliminary observations that are being studied further.

TABLE 2.—*Presumptive and Definitive Diagnosis in Patients with Abnormally High Uptakes*

Presumptive Diagnosis	Definitive Diagnosis	No. Patients
Hyperthyroidism		
Unequivocal	Hyperthyroidism	6
Probable or possible	Hyperthyroidism	5
Heart disease		
Type undetermined	Toxic adenoma, thyrocardiac	1
Type undetermined	Hyperthyroidism, thyrocardiac	4
Type undetermined	Hypertensive heart disease, possible distortion by KSCN	1
		17

TABLE 3.—*Comparison of Laboratory Findings in Seventeen Patients with Abnormally High I^{131} Uptakes*

Patient	Uptake, % 6 Hr.	Uptake, % 24 Hr.	Basal Metabolic Rate, %	Protein-Bound Iodine, μg per 100 Cc.	Cholesterol, Mg. per 100 Cc.
1	46	53	+21	5.1	110
2	49	54	+47	10.6	137
3	29	42	.....	4.9	143
4	26	40	+17	11.5	229
5	41	55	+28	11.8	178
6	48	59	+68	12	131
7	65	65	+43	12.6	142
8	45	58	+40	8.4	217
9	35	47	+15	7.7	150
10	44	55	+15	18	171
11	32	43	.....	8	...
12	35	48	+ 8	8.4	143
13	50	58	+20	10.1	206
14	36	50	+ 8	9.8	138
15	24	52	+12	12.7	182
16	34	57	+37	7.9	151
17	(1) 21	44	.....	5	266
	(2) 22	46	.....	4	258

A number of uptake values were found to be at the lower range of normal, such as 10 to 12% in 24 hours. No satisfactory explanation can be offered for this finding in persons in whom the results of other laboratory tests were all within the normal range. Several such patients were referred to the thyroid clinic a few days after a surgical procedure. The lowered thyroid uptake might be explained on the basis of surgical trauma, such as that demonstrated by Blount and Hardy.[8] Whether other uptake values are due to nonspecific stress is mere speculation. It is emphasized, however, that these uptake values slightly lower than normal are not to be considered as being in the hypothyroid range. On the contrary, after examining these persons, it was found that the diagnosis made by the referring physician was possible hyperthyroidism, anxiety state, et cetera.

RESULTS

The following comparisons between the I^{131} tracer test, basal metabolic rate, serum protein-bound iodine, and serum cholesterol as indexes of thyroid function may be made as a result of this study.

TABLE 4.—*Causes of Low Radioactive Iodine Uptake*

Cause of Low Uptake	No. of Patients
Myxedema	10
Hypothyroidism after thyroidectomy or I^{131} therapy	4
Thyroiditis	5
Cortisone therapy	3
Thyroid adenoma, nontoxic	8
"False low"	28
Unexplained	3
	61

It is generally agreed that the basal metabolic rate correlates reasonably well with results of the tracer test in unequivocal cases of hyperthyroidism or hypothyroidism; however, its wide fluctuation in euthyroid persons limits its usefulness. Hyperthyroidism without apparent hypermetabolism has been described.[9] In such cases, the basal metabolic rate is normal, but the I^{131} uptake and the serum protein-bound iodine level are elevated. No such person was observed in our series. The tracer test as compared with determination of the basal metabolic rate has the advantage that the patient's cooperation is unnecessary. The tracer test is an outpatient test, since a period of rest is not necessary before the test. A combination of a high basal metabolic rate and a depressed uptake has been mentioned in factitious hyperthyroidism caused by secret thyroid medication.[10] No such case has come to our attention.

The serum cholesterol determination is valuable in patients with hypothyroidism but not in patients with hyperthyroidism.[2b]

The results of protein-bound iodine determination and of the tracer study compare very well in most instances. Our own experience confirms the observation that the combination of these two procedures is probably the best available laboratory tool for confirmation of the clinical impression of thyroid disease.[11] It can be seen from tables 1, 2, and 3 that, in all patients with hyperthyroidism, the two tests were diagnostic. It can be argued that only one of the two tests is necessary, but it is in the patient with suspected hypothyroidism that the two procedures are of great value. Low uptake and low protein-bound iodine level are normally found in hypothyroid persons. The uptake test is more sensitive than the determination of protein-bound iodine level in such cases, since, even in cases of full blown myxedema, a protein-bound iodine level of 4 μg per 100 cc. is not uncommon. If 5 to 7 μg per 100 cc. is the normal value, then it is readily apparent that the value of 4 μg per 100 cc. are not too helpful. The combination of a low uptake and a high level of protein-bound iodine indicates, in our experience at least, premedication with iodides; only the pattern of thyroiditis is similar. It has been our practice to elicit from the patient an exhaustive history with regard to the intake of compounds containing iodine. In almost every instance of low uptake and high protein-bound iodine level, this was found. Repeat uptake tests were performed in such instances, but at this time it cannot be stated how much time should elapse before such tests are accepted as truly diagnostic.

Table 5.—*Comparison of Laboratory Findings in Fourteen Patients with Abnormally Low I^{131} Uptakes*

Patient	Diagnosis	24 Hr. Uptake, %	Basal Metabolic Rate, %	Protein-Bound Iodine, μg per 100 Cc.	Cholesterol, Mg. per 100 Cc.
1	Pituitary myxedema	2	—28	6.8	384
2	Myxedema	0.6	—15	4	245
3	Postoperative myxedema	7.3	— 6	7.1	501
4	Myxedema	1	.....	5.1	349
5	Postoperative myxedema	2	—18	4.6	213
6	Postoperative myxedema	2	.....	...	...
7	Postoperative myxedema	6.3	—18	3.7	503
8	Hypothyroidism after I^{131} therapy	10	.....	4.2	340
9	Myxedema	1.5	—23	5.8	467
10	Myxedema	1	—35	3.6	536
11	Rheumatoid arthritis *	6	— 3	5	263
12	Dermatitis *	6	— 5	4.8	178
13	Dermatitis *	10	—13	4.7	116
14	Malignant hypertension, probable hypothyroidism	2	—34	7.1	205

* Patient receiving cortisone.

It is of interest to note the large number of patients who were taking thyroid medication. This depressed the uptake in almost every instance but usually did not raise the protein-bound iodine level significantly. In any patient who is receiving desiccated thyroid medication, it has been our practice to do the I^{131} uptake test and then repeat it three weeks later. Our data bear out the observations of Greer [12] who found that the uptake returns to normal in about three weeks after discontinuation of thyroid medication. Unpublished preliminary observations from this laboratory indicate, however, that the values obtained after three weeks may be abnormally high. Thus serial tracer studies made three weeks apart for several months indicate that a definite rebound phenomenon follows cessation of thyroid medication before the uptake values return to a normal pattern.

Attention is directed to the observation that of the 16 patients with hyperthyroidism only 6 diagnoses were clinically unequivocal. In five of the remaining cases, the primary diagnosis was heart failure of unexplained cause; in the other five, the diagnosis was suspected but confirmation was necessary before treatment could be instituted. All of the 16 persons with hyperthyroidism were treated and have improved, thus giving final proof of the accuracy of the laboratory tests. No patient with proved hyperthyroidism was found to have a normal or low uptake value.

The patients with full blown myxedema were all diagnosed without hesitation; the laboratory studies merely confirmed the clinical impression. Hypothyroidism was suspected in more persons in whom results of the tracer study turned out to be normal than in those with hyperthyroidism. The five patients with thyroiditis were all followed up after their disease had subsided and showed a normal uptake and protein-bound iodine value several weeks after the original tests. In three, the referring diagnosis was hyperthyroidism; only in the remaining two was thyroiditis considered. One patient with carcinoma of the thyroid gland had a normal uptake.

COMMENT

In our experience, the radioiodine thyroid uptake test is an accurate, sensitive, and practical laboratory aid in the diagnosis of thyroid disorders. The test is safe and rapid. It requires no special preparation of the patient, and the patient's undivided attention and cooperation are not necessary, as in the determination of the basal metabolic rate. A technician can do the test accurately, since the operation of the counting equipment is very simple. Since tracer doses of I^{131} can now be obtained commercially, close association with a radioisotope laboratory is not necessary. This is an advantage over the protein-bound iodine determination that must be done by specially trained technicians and with special equipment. In this study, one of us (S. R. J.) took charge of the thyroid diagnostic clinic because it was felt that only very careful examination of the patient's record would give information concerning premedication with iodized compounds, thyroid, and roentgenographic contrast mediums. This was eminently successful as every patient's record was examined, every patient was questioned with regard to premedication, and many cases of contamination were discovered to explain false low uptake values. As a routine procedure, however, it is felt that any technician can operate such a thyroid tracer laboratory under the supervision of a physician.

It should be emphasized that the I^{131} uptake test may not be the ideal thyroid function test and that it is not necessarily better than the determination of the protein-bound iodine level. It measures the avidity of the thyroid gland for iodine and is subject to the same errors as is the serum protein-bound iodine determination. These pitfalls are usually due to iodine or thyroid medication and should be attributed to "patient error" rather than to failure of the tests.

A great number of variants of the simple direct measurement of I^{131} over the thyroid gland have been described.[13] None of these methods fulfill the criteria for the ideal thyroid function test, and they are too complicated to be used as routine tests in a general hospital without close association of a radioisotope laboratory.

The 6 hour uptake and 24 hour uptake determinations are practical, since the 6 hour determination measures the rate of I^{131} accumulation by the thyroid gland and the 24 hour determination measures the approximate maximum concentration. The reasons for this have been described elsewhere.[14] It is the feeling in this laboratory that a 24 hour uptake test alone is sufficient for screening purposes but that much valuable information can be gained by obtaining an earlier determination such as one at 6 hours.

SUMMARY

The results of a pilot study of four thyroid function tests (basal metabolic rate, protein-bound iodine and serum cholesterol determinations, and radioactive tracer test) in a Veterans Administration hospital are reported. The radioactive iodine tracer test was performed with doses of 2 μc of I^{131}, administered in capsule form to control subjects and to patients suspected of having thyroid disorders. A scintillation counter was used to measure the uptake of I^{131} by the thyroid gland.

The radioactive iodine tracer test, using small doses of radioactive iodine and the scintillation counter, is a practical test and compares favorably with determination of the basal metabolic rate and protein-bound iodine and serum cholesterol levels. The combination of the protein-bound iodine test and the radioactive iodine tracer test is an excellent laboratory tool for confirmation of the clinical impression of thyroid disease. The radioactive iodine tracer test is sensitive and is probably the best available thyroid function test. The test can be performed by a trained technician with commercially available radioactive iodine and scintillation counter equipment.

The results of these four tests (basal metabolic rate, protein-bound iodine and serum cholesterol determinations, and radioactive iodine tracer test) in a series of unselected patients are presented and discussed.

Wilshire and Sawtelle Blvd. (25) (Dr. Bauer).

THE ROLE OF EMOTIONS IN DERMATOSES

Gerald M. Frumess, M.D., Denver

The skin may reveal emotional states as eloquently as do the muscles of facial expression. Control of facial muscles may keep the visage inscrutable despite inner turmoil; but voluntary control is useless in suppressing the blush of embarrassment or the cold sweat of fear. Our daily conversation is replete with references to revelations of feelings on the integument. We speak of the face that becomes "purple with rage" or "white with fear." The person impervious to insult is referred to as "thick-skinned"; the sensitive one is "thin-skinned." Aware of danger, one's "hair stands on end"; he may "bristle with courage" or, frozen with fright, have cutis anserina ("goose flesh"). We refer to the "sweating-out" of an unpleasant situation. The expression to "sweat blood" finds its origin in purpuras and religious stigmas of hysterical origin.[1] The term "a blistering denunciation" is derived from the ability to produce blisters by hypnotic suggestion; the intensity of induced blisters may fluctuate with the emotional state of the subject.[2]

Sensory disturbances of the skin are also induced by emotions. Thus one "tingles" with expectation or is "tickled" by an amusing incident. Hostility may cause us to "itch for revenge." A repulsive sight makes our skin "crawl" or gives us the "creeps," the very sensations of patients afflicted with delusions of parasitosis. Fearful of a venture, we speak of getting "cold feet." We are "sitting on pins and needles" while awaiting an important decision—a preface to anal and genital pruritus. The symbolism expressed by excoriations has its parallel in the remark "stop picking on me."

The purpose of this paper is to examine the emotions responsible for changes in the skin; to describe the physical agencies through which they mediate these effects; and to discuss diseases of the skin that appear to have important emotional components.

EMOTIONAL COMPONENTS OF PSYCHOSOMATIC DERMATOSIS

English[3] describes eight common emotions, some of which are conspicuous in the personalities of patients with certain skin disorders. It is, therefore, of practical importance to investigate these emotions.

The need for love is one of humanity's greatest hungers.[3] If this hunger is unsatisfied, the resulting

---

Read at the Sixth Clinical Session of the American Medical Association, Denver, Dec. 5, 1952.

Owing to lack of space, all of the bibliographic references have been omitted from The Journal and will be included only in the author's reprints.

frustration may lead to other unpleasant emotions. The person who believes himself unloved may resort to symbolic or perverted ways of obtaining affection. If these substitutes overflow into the autonomic nervous system, there is consequent itching and scratching. Thus certain skin diseases, especially localized neurodermatitis and anogenital pruritus, may be unconscious erotic substitutes for a lack of love.

Yaskin[4] states that anxiety is the central symptom of nearly all the psychoneuroses. One may be consciously aware of anxiety as feelings of fear and worry. If the causes of the anxiety are below the level of consciousness, however, an overflow into autonomic pathways commonly occurs, and bodily dysfunctions, including skin disorders, may result.

Anxiety may lead to hostility, which often is manifested aggressively as wholesome competitiveness, righteous wrath, or outbursts of anger. When hostility is repressed, however, the result is an irreconcilable conflict between desire for power and achievement and desire for affection and admiration. Horney[5] believes the conflict so established is the chief cause of the neuroses. Repressed hostility is the most frequently encountered trait in patients with disseminated neurodermatitis.[6]

Hostility, in turn, often results in feelings of guilt. The person experiencing guilt feels he cannot achieve the goals others or his own conscience have established for him. The result may be an attitude of self-sacrifice, creating tensions that overflow into the autonomic nervous system. Guilt may, on the other hand, dictate the need for self-punishment, with consequent excoriation and mutilation of the skin.

It is an unfortunate paradox that accepted social virtues, such as meticulousness, a ready sense of guilt, and restraint from manifestations of hostility and aggression, are often the cause of psychosomatic disease. It would seem that to be civilized, to be mannerly, to be conscientious, and to be ambitious, is to expose oneself to the danger of neuroses.

PHYSIOLOGICAL FACTORS IN EMOTIONS AND DERMATOSES

The emotions may cause changes in the skin by releasing certain substances at the autonomic nerve endings. These substances, in turn, may act synergistically with other biological factors to cause alterations in the skin. An understanding of these links between emotions and physical agents should reconcile the disputes between the organic and functional schools of etiology.

Two divisions of the autonomic nervous system are recognized: the sympathetic and the parasympathetic. Both divisions have physiological connections with the higher brain centers and may, therefore, be stimulated or inhibited by psychic changes. Parasympathetic fibers in general and sympathetic fibers to sweat glands liberate acetylcholine at their terminals.[7] Acetylcholine causes vasodilatation and secretory activity of the oil glands and sweat glands, (which are, however, of sympathetic innervation). Excitement, hostility, and embarrassment may stimulate these fibers, with subsequent flushing of the skin, oil secretion, and sensations of itching. Release of more acetylcholine causes further permeability of the blood vessels, whereupon whealing, or hives, may occur; still further permeability results in the escape of formed elements of the blood, with consequent purpura and even frank bleeding. Sympathetic fibers (except those to the sweat glands) liberate an epinephrine-like substance called sympathin.[7] Stimulation of this system is seen in reactions to fear and anxiety. Changes in the skin are pallor, coldness, sweating, cutis anserina, and crawling sensations. Some emotions produce a mixture of sympathetic and parasympathetic effects on the skin.

A neurotic person or a normal one under stress tends to have a set pattern of skin response to emotional stimuli. This pattern, if repeated often enough, may cause functional changes to advance to organic disease.[7]

There is a special relationship between allergy and the nervous system. This is explained biologically in the synergism of acetylcholine and histamine. A histamine-like substance is produced at the site of most allergic reactions. Reinforcement by release of acetylcholine of emotional origin at that site may cause histamine to produce a clinical allergic reaction when the concentration of histamine alone would be insufficient to do so.[8] This explains why so many persons experience allergic reactions only when they are emotionally disturbed.

Another important contribution to our knowledge of the interaction between emotional and physical factors is the recent concept of "internal sweating." When the sweat ducts become plugged and sweat continues to be secreted, the pressure within the ducts may rise to 240 mm. Hg.[9] There are over 2 million sweat glands in the human skin. In areas where the glands are occluded by scales or inflammation, it is understandable that retained sweat feels like the pricking and stinging of countless hypodermic injections. Since sweating may be caused by emotional stress, the already inflamed skin rapidly responds to "internal sweating" by a flare-up. These outbursts can sometimes be forestalled by the use of anticholinergic drugs, such as methantheline (Banthine) bromide and diphenmethanil (Prantal) methylsulfate, which inhibit sweating. With sweat retention there may also be retention of allergens that would normally be excreted with the sweat.[9] These allergens, dammed back and under greatly increased pressure, may cause allergic reactions that occur only if sweat is secreted and the sweat ducts are plugged.

ROLE OF EMOTIONS IN SPECIFIC DISEASES

Emotional factors affect two skin diseases of proved organic etiology: warts (verrucae) and fever blisters. The common wart is a benign tumor caused by tissue response to a virus infection. The power of suggestion in curing warts has been known for centuries. Witch doctors and medicine men often gained their reputations by the successful employment of necromancy in treating warts. Mark Twain's Tom Sawyer and Huckleberry Finn effected cures by resorting to nocturnal sorcery. It is ethical practice today to use suggestion in treating warts.

Recurrent herpes simplex as manifested by fever blisters or "cold sores" is another disease of proved virus etiology. The latent virus, carried by most adults, is usually activated by upper respiratory tract infections, fever, upset stomach, and other identifiable factors. A group of 10 patients with recurrent herpes simplex that had no such correlation to organic factors was studied by Blank and Brody.[10] Nine of the ten patients showed an amazing uniformity in psychological patterns in that they were immature, passive, dependent, and highly suggestible. Hostility was recognized in conflict with their desire to please. Brief psychiatric treatment was usually sufficient to control the attacks of herpes simplex, at least during the period of active psychotherapy. Many patients with recurrent herpes simplex recognize the relationship between emotional disturbances and attacks of this disease.

Blushing, or flushing, is the commonest external manifestation of parasympathetic stimulation. English [3] states that the blush symbolizes inner excitement. A desire to conceal this excitement and fear of its exposure provide psychic stimuli resulting in the blush. Seitz [11] states that blushing is a reaction to guilt and that a consequence of blushing is pruritus and scratching. Common skin disorders such as rosacea, urticaria of psychogenic origin, eczema of the flush areas, solar dermatitis, and lupus erythematosus occur when persons with the flush mechanism are subjected to certain organic disturbances.

Rosacea occurs in persons with the blush tendency who are also subject to gastrointestinal disturbances and menopausal disorders.[12] These patients are quiet, reserved, serious-minded, and bashful.[13] They rarely react aggressively to attack but, rather, become obstinate and sullen. A high level of self-esteem causes them to suppress feelings of guilt and shame. Treatment of rosacea requires that this personality pattern be corrected, as well as the gastrointestinal disorder and the skin blemishes.

Another consequence of the blush mechanism is seen in patients with urticaria of psychogenic origin. An emotional factor is present in most cases of urticaria.[14] Clinical and psychoanalytic studies performed on patients in whom biological causes of urticaria have been satisfactorily excluded delineate personality types that have certain common characteristics.[15] All seem to have intense longings for achievement; they are driving, keyed-up persons, intent on a goal. They often consider themselves wronged or injured, usually by someone in a fairly close family relationship, and regard the situation as one that precludes any personal action.[16] A conflict between the desire for power and the desire for approval results in the vasomotor components of urticarias. Reference has been made to synergism between histamine produced on an allergic basis and acetylcholine produced on an emotional one. This explains the frequent observations that a person can eat tomatoes with no resultant hives except at times when he is emotionally disturbed. Since tension in hard-driving people who long for achievement can usually be lowered by psychotherapy, this method is an important aid in the management of urticaria with psychogenic elements.

Atopic eczema of infancy and childhood is a challenge to several specialties. Many afflicted children carry hereditary allergies, and this factor must be considered in treatment. Carefully directed topical therapy often alleviates the symptoms. A psychiatric approach to the parent has recently afforded a further means of managing this disease. Williams [17] studied atopic dermatitis in children from the standpoint of the maternal rejection factor. Of 33 children examined, 31 manifested symptoms of maternal rejection according to accepted criteria.[18] In the other two cases the mothers demonstrated attitudes suggesting rejection of the child. Therapy was directed mainly toward correction of the mother's behavior toward the child. Favorable results in this series exceeded those achieved by topical applications and conventional methods of therapy in allergy. In childhood eczema there is a constant "battle of the wits" between child and parent, in the course of which the child discovers that his most potent weapon is an orgy of scratching. This weapon is used in retaliation against persons and situations that threaten his sense of security. I have noted the prevalence of eczema in adopted children. While consciously "wanted" by their parents, they sense the presence of unconscious rejection by the mother, to whom the adopted child is, at best, a substitute for the one she could not conceive and whose imagined qualities the foster child fails to fulfill. A psychiatric approach to parents in the therapy of infantile atopic eczema must be accepted as an aid to conventional methods of treatment.

Adult patients with neurodermatitis, or atopic eczema, have certain traits in common with those exhibited by children with eczema. There is a significant frequency of personal and family atopy. Almost invariably anxiety exists, expressed as hostility. This may still have as its target the mother or a mother figure.[19] Unlike the eczematous child, however, the adult with eczema suppresses resentments and turns them inward. This trait has been demonstrated by clinical studies,[6] Rorschach patterns,[20] and the use of other projective tests.[21] Resentment may be disguised as superficial compliance; therefore the patient may appear to be complaisant and acquiescent up to the very moment when he rejects his physician in favor of another therapist. The hostility, on the other hand, may be more overt. In such cases the physician dreads each visit of the patient, with his scepticism toward every proposed remedy. The person with neurodermatitis is very meticulous in his habits. He may produce at each office visit an itemized list of questions to ask the physician. The patient is usually above average in intelligence and is aware that his ambitions surpass his talents. Frustration is the inevitable consequence. He has, literally at his fingernails, a means of emancipation from situations that threaten his adequacy: he scratches.

Most patients with disseminated neurodermatitis benefit from judicious psychotherapy. The ideal therapist would combine the talents of a competent dermatologist, an alert allergist, and a prudent psychiatrist. Combined medical and psychological therapy by one physician is most frequently indicated in cutaneous conditions with emotional aspects.[22] Haphazard psychological probing in the presence of severe or long-standing neuroses, however, is dangerous. It may result in the breaking up of homes, suicide attempts, development of frank perversions, or acute psychotic reactions. These possibilities should be anticipated, and the patient with deep-seated neuroses should be referred for skilled psychiatric treatment. If such care is unavailable, the physician should do the best he can with medical treatment alone.

Seitz and Gorman [23] assert that the dermatologist can practice psychotherapy if he possesses certain qualifications. He must enjoy helping people, be able to sit quietly and listen comfortably, refrain from displaying restlessness, and possess some training in dynamic psychotherapy. The patient must be one whose skin disorder is not too long-standing; his past history should be one of relatively good adjustment; and his emotional conflicts should be of recent origin. Therapy may safely include supportive methods that reinforce the patient's feelings of adequacy and security, promote harmony, and provide him opportunity to discuss his conflicts.

Localized neurodermatitis, or lichen simplex chronicus, usually appears as isolated patches of thickened skin, with intense itching. Severe scratching or overtreatment may produce acute flare-ups with edema and exudation. Common sites of involvement are the nape of the neck, the pretibial areas, the scrotum, the vulva, and the anal region. Careful search for organic causes must be made before the diagnosis of essential pruritus or neurodermatitis of the anogenital areas becomes tenable. Frequently an organic factor of chemical, mechanical, infectious, or allergic nature starts the process, though it may continue as a purely psychogenic itch, with lichenification or thickening a result of scratching. In either event, the scratch habit becomes so inveterate that if topical and physical agents prove incapable of breaking this vicious cycle of itching, scratching, and lichenification, then psychotherapy must be used. Localized neurodermatitis, while usually not a serious malady, may be the somatic expression of deep-seated emotional disturbance. It may symbolize an erotic substitute for lack of love or an immature means of securing genital pleasure; or the scratching may emanate from a sense of guilt and a consequent need for self-punishment in the form of excoriation. The personality type of these patients does not lend itself to superficial psychological exploration; if psychotherapy is necessary, it should be conducted by one well trained in its methods.

Eczema of the hands is a complex, often disabling disease of diverse etiology. Since the palmar surfaces are especially prone to exhibit emotional sweating, this factor is important in all types of hand eczemas, whether of psychogenic, organic, or allergic etiology. Maceration of the skin by sweat renders it more pervious to chemical irritants and contact allergens. More important is the sweat-retention factor previously mentioned, in which plugging of the sweat ducts occurs with subsequent "internal sweating." This may be the primary cause of dyshidrotic eruptions, and may secondarily intensify hand eczemas of all types.

Frequent references have been made to the role of the emotions in other dermatoses, such as psoriasis,[24] seborrheic dermatitis,[25] lichen planus, alopecia areata,[26] and dermatitis herpetiformis and to the psychological consequences of disfiguring skin diseases such as acne vulgaris and lupus erythematosus.[27]

A few diseases of purely functional nature are encountered by the dermatologist. Delusion of parasitosis [28] is a manifestation of a deep-seated psychosis. In the course of this disease the patient brings rolled-up bits of tissues and crusts he has removed from his skin, asking the physician to identify these "worms" or "bugs" that are crawling on or in him. Phobias commonly encountered by the dermatologist are fear of syphilis and fear of cancer. Klauder [29] believes that burning tongue, for instance, is invariably the expression of fear of cancer, often aroused by indiscreet remarks of a physician. Neurotic excoriations and self-inflicted mutilations, whether imposed upon or independent of coexisting skin disease, may result from guilt feelings and a strong need to disfigure or to cause pain and call attention to oneself in some perverse way; or it may be a conscious means of malingering to secure sympathy or compensation. These functional diseases represent psychiatric problems and are amongst the most severe and intractable psychiatric conditions.

SUMMARY

Commonly encountered emotions such as insecurity, anxiety, hostility, and guilt may cause stimulation of the autonomic nervous system, leading to flushing, sweating, itching, and excoriating. Physical agents through which emotions mediate these effects are acetylcholine released at parasympathetic nerve fiber endings; sympathin produced by sympathetic stimulation; synergism between acetylcholine and histamine; and the mechanical and allergic effects of sweat retained under pressure.

Several skin disorders believed to be of emotional origin exhibit fairly characteristic personality patterns. An effort has been made to relate the clinical entity to the emotional pattern in herpes simplex, rosacea, urticaria, childhood eczema, adult neurodermatitis, and localized neurodermatitis. In most such cases it is desirable that one physician supervise both the somatic and psychic aspects of therapy. Functional dermatoses such as delutions of parasitosis, syphilophobia, dermatitis factitia and neurotic excoriations result from deep-seated neuroses or psychoses and should be referred to the psychiatrist for treatment.

2200 East 18th Ave.

The Work of a Ship Surgeon.—People are always liable to sudden illness. Cases of acute appendicitis occur now and then in . . . places ideal from a health point of view. The same holds good in the case of ships, however modern and hygienic; indeed, even more so, considering the sudden changes of climate to which all on board are subject during a voyage of any duration, also the dietetic risks taken ashore at various ports of call. To this must be added: (1) the almost invariable presence on board, among the passengers, of cases of chronic illness, e. g., diabetes mellitus, gout, arthritis; (2) the presence on board of the crew, who are "super-liable" to accidents, right round the clock. Passengers seem strangely oblivious of the latter; they mostly have the idea that the doctor is on board primarily in their interests, whereas, . . . in strict legality, there is no onus on the shipowner to provide a surgeon for passengers per se—except in respect of an old-standing legal requirement whereby a doctor has to be provided when 50 or more emigrant or third-class passengers are on board. . . . There is a vast difference between the small "passenger-cargo" ship with just over 100 "souls on board" and the large modern passenger liner. The two Cunarder "Queens" have each, when full, a total complement of round about 5,000 persons on board, to meet the medical needs of whom two surgeons, three nursing sisters, and six hospital or surgery attendants are required. . . . In these large ships, with their relatively huge complements, any sort of emergency may arise at any hour, from which it follows that the surgeons on board have to be "universal" specialists, of a sort able to give at least first aid in the various specialties.—J. S. Meighan, M.D., The Ship-Surgeon's Life, *Practitioner,* May, 1953.

SERUM HEPATITIS FROM POOLED IRRADIATED DRIED PLASMA

William P. Murphy Jr., M.D.
and
William G. Workman, M.D., Bethesda, Md.

An understanding of the relationship between the occurrence of homologous serum hepatitis and the transfusion of pooled dried human plasma irradiated with ultraviolet light is necessary in order to evaluate the usefulness of the large volume of dried plasma now being manufactured. Early reports [1] indicated that the etiological agent of homologous serum hepatitis is destroyed by ultraviolet irradiation. More recent reports [2] have indicated that the methods of irradiation are not always adequate. The present study was conducted to determine further the role of irradiated dried plasma in the transmission of homologous serum hepatitis.

The plasma used in this study consisted of official test samples submitted by seven licensed processors to the Laboratory of Biologics Control of the National Microbiological Institute for evaluation before release of the material. Samples from each processor are tested for sterility, freedom from pyrogens, hemoglobin content, and solubility and must meet minimum requirements before release for human transfusion. All of the samples used represented lots of plasma manufactured for the armed forces. A record is kept in the Laboratory of Biologics Control of the clinical use of many of these lots of plasma, making possible the patient follow-ups reported here. Patients who received plasma prepared by these seven processors between Jan. 1, 1951, and April 1, 1952, are included. Clinical use was reported by a responsible physician in each of seven hospitals.

The records of 464 patients were investigated, and, of these, 180 could be followed up well enough to be included in the study. The other 284 patients investigated were excluded from the series for the main reasons of: early death (176), incomplete or missing hospital records (35), and inability to locate the patient (69). Since pooled plasma does not have to be typed and is readily available, it was used to treat patients in critical condition, as the result of either chronic disease or acute injury. Early death from these causes accounted for the majority of exclusions. The patients included had received the plasma at least 150 days prior to follow-up examination. No effort was made to determine whether or not human blood products other than plasma and whole blood were used. When possible, patients were interviewed in order to determine the presence of serum hepatitis. They were not asked leading questions, but were encouraged to relate their symptoms if any had occurred. They were questioned about general health, specific diseases, ability to work, contacts, malaise, anorexia, nausea and vomiting, abdominal tenderness, and pruritus, as well as jaundice. A patient who could not be interviewed because he had left the locality or had died was included in the series only if he had been examined by a physician at least once every two months from the second to the sixth month after receiving the plasma. Contact with private patients was made by the attending physician, and the information was accepted in writing.

The 180 patients in this study received a total of 403 units of plasma containing 600 cc. each. Sixty-four patients (35.5%) received plasma alone, while the rest (64.5%) received whole blood as well. Twenty-three patients, or 12.8% of the 180, had a history of signs and symptoms of serum hepatitis. Of the 64 patients who received only plasma, 6 (9.3%) later had hepatitis. No patients were included who did not show jaundice. Two additional cases of jaundice were found in which a history of exposure to infectious hepatitis eliminated the diagnosis of definite serum hepatitis. Two other cases of jaundice were considered to be secondary to biliary obstruction. Twenty of the 23 cases were diagnosed on readmission of the patients to the hospital, and the other 3 were diagnosed from the history given on personal interview. Table 1 shows the number of patients studied at each hospital and the incidence of hepatitis found.

TABLE 1.—*Incidence of Serum Hepatitis Among Patients Receiving Irradiated Plasma*

Hospital	No. of Patients Studied	Cases of Hepatitis	Incidence of Hepatitis, %	Deaths
1	33	2	6.0	1
2	27	2	7.4	..
3 *	..	..	...	..
4	17	5	29.4	2
5	60	8	13.3	2
6	30	3	10.0	1
7	13	3	23.0	1
Total	180	23	12.8	7

* In hospital 3, the 12 patients who received the plasma were not available for the study.

In the 23 cases of hepatitis presumably resulting from the administration of whole blood or irradiated plasma, there were 7 (30.5%) deaths apparently due to hepatitis. There was one other death among the persons who contracted the disease, but this was probably a direct result of the primary disease, with the hepatitis as a contributing factor. Plasma from each of the seven processors was involved in one or more cases of hepatitis. Table 2 shows the manufacturers and amounts of plasma given in the 23 cases of hepatitis. Dried plasma prepared from fresh

---

From the Laboratory of Biologics Control, National Microbiological Institute, National Institutes of Health.

[1] Oliphant, J. W.: Jaundice Following Administration of Human Serum, Harvey Lecture, March 16, 1944, Bull. New York Acad. Med. **20**: 429-445, 1944. Oliphant, J. W., and Hollaender, A.: Holomogous Serum Jaundice: Experimental Inactivation of Etiologic Agent in Serum by Ultraviolet Irradiation, Pub. Health Rep. **61**: 598-602, 1946. Blanchard, M. C., and others: Methods of Protection Against Homologous Serum Hepatitis: Inactivation of Hepatitis Virus SH with Ultraviolet Rays, J. A. M. A. **138**: 341-343 (Oct. 2) 1948.

[2] Rosenthal, N.; Bassen, F. A., and Michael, S. R.: Probable Transmission of Viral Hepatitis by Ultraviolet-Irradiated Plasma: Report of 3 Cases, J. A. M. A. **144**: 224-226 (Sept. 16) 1950. Greenlee, R. G.; Terrill, R. J., and Sloan, J. Q.: Homologous Serum Hepatitis After Transfusions of Blood and Ultraviolet-Irradiated Plasma, Texas State J. Med. **47**: 831-835, 1951.

blood as well as reprocessed * plasma was involved, and there was no apparent relation between the number of cases and type of plasma, nor was a relation found between the number of cases of hepatitis and the method of ultraviolet irradiation.

COMMENT

The attack rate of serum hepatitis resulting from the injection of infected material is estimated by Paine and Janeway[3] as being about 40%. This incidence agrees with that obtained by Murray and others[4] in experimentally induced hepatitis. The fact that the present study shows a lower rate (12.8%) is probably the result of several factors. Perhaps most important is the indication that ultraviolet irradiation is effective to some degree, although not completely. Furthermore, in view of the fact that other studies of this disease[5] have revealed a definite incidence of nonicteric cases of serum hepatitis, it seems likely that there were additional undiagnosed cases and that the true incidence of the disease was higher than reported here. Studies showing an incidence of nonicteric hepatitis have, however, been those in which laboratory studies were possible, which was not the case in this series.

TABLE 2.—*Cases of Serum Hepatitis*

Patient No.	Sex	Race	Age	Plasma Processor (Units of Plasma) A	B	C	D	E	F	G	Total Units of Plasma Fresh	Reprocessed	Whole Blood, Total Units	Incubation Period, Days	Deaths
1	M	W	49	12	..	10	..	1	..	..	13	10	7	211	..
2	M	W	22	3	..	2	..	..	..	..	3	2	20	50	..
3	M	W	35	..	..	1	..	..	..	..	..	1	2	80	X
4	M	W	78	..	..	1	..	..	..	..	..	1	1	112	..
5	M	W	40	..	..	1	..	..	..	..	..	1	2	149	..
6	M	N	32	..	5	..	..	..	2	..	2	5	14	98	X
7	F	N	30	..	..	1	..	..	..	..	..	1	..	62	..
8	M	W	50	..	..	..	..	..	1	..	..	1	..	46	..
9	F	W	27	..	..	1	..	..	..	..	..	1	3	131	..
10	M	W	56	..	..	21	..	..	..	..	..	21	3±	84	X
11	F	W	43	..	..	1	..	..	..	..	1	..	2±	87	..
12	F	W	39	1	..	..	..	..	..	..	1	..	..	67	..
13	M	N	42	..	..	..	..	..	..	2	2	..	..	130	..
14	M	N	72	1	..	..	..	..	..	..	1	..	10	93	..
15	M	W	46	3	..	..	..	2	1	..	6	..	4	94	..
16	M	W	56	1	..	1	..	..	1	..	3	..	5	78	X
17	M	N	66	1	..	..	..	..	..	..	1	..	..	62	X
18	F	W	51	..	..	1	..	..	..	..	..	1	..	112	..
19	M	W	60	..	..	1	..	..	1	..	1	1	3	120	..
20	M	W	29	..	..	..	1	..	..	..	..	1	16	62	..
21	M	N	40	1	..	..	1	..	..	..	2	..	1	57	X
22	F	W	70	1	..	..	..	..	..	..	1	..	1	68	X
23	F	N	50	1	..	..	..	..	..	..	1	..	4	78	..

Many patients receiving plasma also receive whole blood, and nearly all receive many skin punctures by instruments that may be ineffectively sterilized. Since reports indicate that as little as 0.0001 to 0.00001 cc. of infected material can transmit the disease,[6] the origin of the infection may often remain questionable. Although a skin test for infectious hepatitis has been described,[7] it was not utilized in this study. Since only a positive history of contact combined with short incubation distinguishes infectious hepatitis from serum hepatitis, this similar disease serves to confuse the issue further. A study to determine the occurrence of serum hepatitis can be absolute only in a negative way; that is, if no cases of serum hepatitis can be elicited in a significant number of patients, then the plasma has not been infective. On the other hand, evidence of cases occurring may be of value if the total incidence is significantly higher than the incidence of endemic infectious hepatitis and whole blood transfusion hepatitis.

The occurrence of serum hepatitis as the result of the transfusion of whole blood is generally considered to be less than 0.5%.[8] The incidence of infectious hepatitis in one of the three cities in which this study was done was 0.02% per year; 198 cases were reported in 1951 in a population of 985,000. Of the 77 patients who had received plasma (and in some instances whole blood as well) in this city, 13 (16.7%) later had jaundice. The percentage of jaundice found in this group of patients is then far higher than the probable combined occurrence of infectious hepatitis and hepatitis from blood transfusions.

The seven deaths were about evenly distributed among patients in the fourth to eighth decades of life (fig. 1). In the third decade, which is well represented, no deaths occurred. Although the number was too small to be significant, the mortality rate was compatible with other reported studies.[9]

The findings in this study indicate that ultraviolet irradiation of pooled plasma by method of large-scale production is not wholly effective for complete destruction of the agent of homologous serum hepatitis. Transfusion of pooled dried plasma, even though irradiated, involves a calculated risk that should be considered carefully in relation to the need of the patient for this therapeutic agent.

---

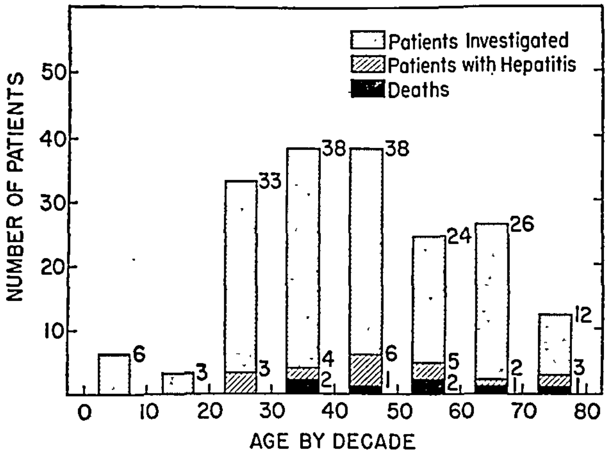
* Reprocessed plasma is that which has been processed to the final stage once and is then reconstituted, pooled, clarified, irradiated, dispensed into the final container, dried, and finally tested. The reprocessed plasma referred to here had not been irradiated during the original processing, and was, therefore, reprocessed in order to expose it to ultraviolet irradiation.

[3] Paine, R. S., and Janeway, C. A.: Human Albumin Infusions and Homologous Serum Jaundice, J. A. M. A. **150**: 199-202 (Sept. 20) 1952.

[4] Murray, R.; Diefenbach, W. C. L.; Ratner, F., and Leone, N. C.: Effect of Heat on the Agent of Homologous Serum Hepatitis, Laboratory of Biologics Control, National Microbiological Institute, National Institutes of Health, Bethesda, Md., *to be published*.

[5] Memorandum prepared by Medical Officers of the Ministry of Health: Homologous Serum Jaundice, Lancet **1**: 83-88, 1943. Barker, M. H.; Capps, R. B., and Allen, F. W.: Acute Infectious Hepatitis in the Mediterranean Theater, Including Acute Hepatitis Without Jaundice, J. A. M. A. **128**: 997-1003 (Aug. 4) 1945. Scheinberg, I. H.; Kinney, T. D., and Janeway, C. A.: Homologous Serum Jaundice: A Problem in the Operation of Blood Banks, J. A. M. A. **134**: 841-848 (July 5) 1947.

[6] Drake, M. E., and others: Effect of Nitrogen Mustard on Virus of Serum Hepatitis in Whole Blood, Proc. Soc. Exper. Biol. & Med. **80**: 310-313, 1952. Paine and Janeway.[3] Murray and others.[4]



Incidence of hepatitis and deaths by age groups.

SUMMARY AND CONCLUSIONS

Four hundred and sixty-four records of patients who had received pooled. dried irradiated human plasma 150 or more days previously were investigated. The records of 180 patients were found adequate to warrant a study of the occurrence of serum hepatitis as a result of the plasma transfusion. Twenty-three or 12.8% of the 180 patients had signs and symptoms of serum hepatitis. Seven or 30.5% had died as a direct result of the disease or a combination of their original disease and the hepatitis. Of 64 patients who had received only plasma and no whole blood, 6 (9.3%) had hepatitis. The occurrence of a 12.8% incidence of hepatitis is considered significantly higher than that of hepatitis as the result of blood transfusion alone (0.5%) or the incidence of infectious hepatitis (0.02%). The findings indicate that the methods now used for the irradiation of pooled plasma in large-scale production are not wholly effective in complete destruction of the agent of homologous serum hepatitis.

[7] Henle, G.; Drake, M. E.; Henle, W., and Stokes, J., Jr.: A Skin Test for Infectious Hepatitis, Proc. Soc. Exper. Biol. & Med. 73: 603-605, 1950.

[8] Webb, C. H.; Wolfe, S. G.; Lucas, R. T., and Anderson, C. E., Jr.: Acute Hepatitis in Children: Clinical Features and Laboratory Tests, South. M. J. 40: 340-349, 1947. Lehane, D.; Kwantes, C. M. S.; Upward, M. G., and Thomson, D. R.: Homologous Serum Jaundice, Brit. M. J. 2: 572-574, 1949. McGraw, J. J., Jr.; Strumia, M. M., and Burns, E.: The Incidence of Post-transfusion Serum Hepatitis, Am. J. Clin. Path. 19: 1004-1015, 1949. Allen, J. G.; Sykes, C.; Enerson, D. M., and Moulder, P. V.: Homologous Serum Jaundice and Its Relationship to Methods of Plasma Storage, J. A. M. A. 144: 1069-1074 (Nov. 25) 1950.

[9] Fox, J. P.; Manso, C.; Penna, H. A., and Para, M.: Observations on Occurrence of Icterus in Brazil Following Vaccination Against Yellow Fever, Am. J. Hyg. 36: 68-116, 1942.

SERUM HEPATITIS APPARENTLY ACQUIRED FROM IRRADIATED PLASMA

Robert M. Albrecht, M.D., Robert F. Korns, M.D., William G. Beadenkopf, M.D.
Melvin B. Goodman, M.D., Frances B. Locke, M.S.
and
Veronica Marks, R.N., Albany, N. Y.

Pooled human plasma, untreated, has been a frequent cause of serum hepatitis. Blood from one donor carrying the virus can make a whole pool infectious. Obviously the likelihood of plasma being infected varies with the number of donors making up the pool. Plasma from a large pool is more frequently infected than plasma from a small pool. The probability of contracting serum hepatitis from a whole blood transfusion is extremely small. Paine and Janeway[1] have analyzed reports on this subject.

Exposing plasma to ultraviolet light seemed to obviate this hazard. Known icterogenic serum so treated has been given in small quantities to volunteers without causing hepatitis.[2] MacCallum,[3] on the other hand, used a different technique of irradiation that failed to prevent the transmission of hepatitis. Irradiation of plasma has been required by the National Institutes of Health since April, 1949, as a prerequisite to licensing manufacturers.

That irradiation does not always inactivate the virus was shown by James, Korns, and Wright[4] who reported the occurrence of 12 cases of serum hepatitis among 20 recipients of one lot of irradiated plasma. Of course this outbreak could have been due to faulty irradiation of the plasma involved, rather than to the inefficacy of irradiation as a means of inactivating hepatitis virus. There have been other reports[5] attributing serum hepatitis to irradiated plasma, but this apparent association could have been coincidental rather than causal. To pursue this problem further, a series of patients who received irradiated plasma from several sources was studied to determine whether irradiated plasma, as it is routinely prepared for commercial distribution, carries with it a definite risk of producing serum hepatitis.

From the Bureau of Epidemiology and Communicable Disease Control, New York State Department of Health. Dr. Goodman is presently with the New York State Mental Health Commission.

[1] Paine, R. S., and Janeway, C. A.: Human Albumin Infusions and Homologous Serum Jaundice, J. A. M. A. 150: 199-202 (Sept. 20) 1952.

[2] Oliphant, J. W.: Jaundice Following Administration of Human Serum, Harvey Lecture, Bull. N. Y. Acad. Med. 20: 429-445 (Aug.) 1944. Oliphant, J. W., and Hollaender, A.: Homologous Serum Jaundice: Experimental Inactivation of Etiologic Agent in Serum by Ultraviolet Irradiation, Pub. Health Rep. 61: 598-602 (April 26) 1946. Blanchard, M. C., and others: Methods of Protection Against Homologous Serum Jaundice. The Inactivation of Hepatitis Virus SH with Ultraviolet Rays, J. A. M. A. 138: 341-343 (Oct. 2) 1948.

[3] MacCallum, F. O.: Homologous Serum Hepatitis, Proc. Roy. Soc. Med. 39: 655-657 (Aug.) 1946.

[4] James, G.; Korns, R. F., and Wright, A. J.: Homologous Serum Jaundice Associated with Use of Irradiated Plasma, J. A. M. A. 144: 228-229 (Sept. 16) 1950.

MATERIALS AND METHODS

All patients receiving irradiated plasma during the period from late 1949 to early 1952 in three upstate New York hospitals were studied. The hospitals were chosen because they had accurate and generally complete records of the lot numbers of the plasma used. Two of the hospitals obtained their plasma from a single commercial source (plasma B), and the third used plasma from the same as well as another commercial source (plasma A). The pools ranged in size from 51 to 256 donors, averaging 114, for plasma B and from 53 to 178 donors, averaging 150 for plasma A. The plasma was processed in accordance with the requirements of the National Institutes of Health. Since many of the patients received whole blood in addition and since nearly all hospitalized patients received some sort of needle injection during their stay, it was necessary to evaluate these possible sources of infection. Furthermore, subsequent jaundice in these patients might have been due to naturally acquired infectious hepatitis. In order to assess these factors, a control group was studied. Controls for the recipients of plasma plus whole blood were chosen from the hospital blood bank list of whole blood recipients. Controls for the plasma recipients who did not receive whole blood were chosen from a list of hospital admissions. These persons were selected without prior knowledge of the outcome of their illness. The first patient listed who was of the same sex and roughly the same age as the plasma recipient and who was a patient in the hospital at the same time was chosen as the matched control. Most of each group were surgical patients. None of those in whom hepatitis later developed had been given human thrombin, a reported source of serum hepatitis.[6]

TABLE 1.—*Pertinent Data on Eleven Patients in Whom Serum Hepatitis Developed*

					Number and Type of Transfusions					
						Plasma				
Case	Hospital	Age, Yr.	Sex	Dates of Transfusions of Blood and Plasma	Whole Blood, Units	Code No.*	Units	Condition for Which Transfusion Was Given	Date of Onset of Jaundice	Incubation Period, Days
1	A	47	M	9/16/49	3	B1 B2 B3	1 1 1	Bleeding duodenal ulcer	1/11/50	117
2	A	65	M	11/ 2/49	0	B4 B5	1 1	Resection of prostate	1/27/50	86
3	A	78	M	11/30/49	1	A1 B6	1 1	Auto accident	2/27/50	89
4	A	52	F	5/ 5/50	3	A1 A2	1 1	Cancer of urethra	7/13/50	69
5	A	36	M	5/ 9/50	1	A3	1	Tonsillectomy	About 7/26/50	About 78
6	A	32	M	5/17 and 5/23/50	0	A1 A3	1 1	Psoriasis and pemphigus	8/14/50	83 or 89
7	A	50	M	7/20/50	0	A2	2	Bleeding gastric ulcer	10/ 1/50	73
8	C	73	F	8/ 9/51 to 8/11/51	3	B7	2	Cholecystitis and cholecystectomy	About 11/11/50	About 92 to 94
9	C	43	M	10/15/51 to 10/20/51	4	0	0	Ruptured urethra due to trauma	1/ 5/52	77 to 82
10	C	42	M	12/27/51	0	B8	1	Burns	3/28/52	92
11	C	24	M	12/27/51 to 2/ 1/52	16	B8 B9 B10 B11 B12	3 2 3 8 4	Burns	2/26/52	25 to 61

* Plasma is designated A or B, depending on the commercial source; arabic numerals represent different lots of plasma.

Many plasma recipients died shortly after transfusion and were not considered further. Of the 149 plasma recipients remaining for study, 11 were lost from observation, one was excluded because he had hepatitis at the time of the plasma transfusion, and one was excluded because she had been given a variety of blood products over a period of years. Five patients were excluded because they did not survive the possible incubation period of serum hepatitis that, for the purpose of the investigation, was defined as one to six months and because they did not have the full opportunity to acquire serum hepatitis. These five died, without evidence of hepatitis, at intervals ranging from two to five months after the plasma transfusion; thus, 131 plasma recipients were included in the study group. The control group was restricted, in the same way, to those who survived the six month period following the last plasma transfusion given to the matched plasma recipient. If a control died from a cause other than hepatitis during this six month period, another was selected to replace him; thus, the control group consisted of 131 patients.

Efforts to detect hepatitis in these groups consisted of a review of the hospital records, a letter of inquiry to the attending physician, and a visit by the epidemiologist to the patient. Six of the 131 in the study group, and six of the 131 controls had died by the time the study was initiated, although they had all lived at least six months after the last plasma transfusion. In these instances, their families were interviewed. The purpose of the visit was to ascertain whether the plasma recipient, or the control, had suffered from hepatitis or an illness suggestive of hepatitis that was unknown to the hospital or to the physician in attendance at the time of hospitalization. Home visits were made to both groups of patients from

---

5. Rosenthal, N.; Bassen, F. A., and Michael, S. R.: Probable Transmission of Viral Hepatitis by Ultraviolet Irradiated Plasma, J. A. M. A. **144:** 224-226 (Sept. 16) 1950. Barnett, R. N.; Fox, R. A., and Snavely, J. G.: Hepatitis Following the Use of Irradiated Human Plasma, ibid. **144:** 226-228 (Sept. 16) 1950. Greenlee, R. G.; Terrill, R. J., and Sloan, J. Q.: Homologous Serum Hepatitis After Transfusions of Blood and Ultraviolet-Irradiated Plasma, Texas State J. Med. **47:** 831-835 (Dec.) 1951. Thompson, J. L., Jr., and Sutliff, W. D.: Viral Hepatitis Following the Use of Ultraviolet Irradiated Human Plasma, South. M. J. **45:** 801-805 (Sept.) 1952. Unpublished data on file, New York State Department of Health.

6. Lesses, M. F., and Hamolsky, M. W.: Epidemic of Homologous Serum Hepatitis Apparently Caused by Human Thrombin, J. A. M. A. **147:** 727-730 (Oct. 20) 1951.

hospitals A and B, but, since hitherto unknown cases of hepatitis with icterus or instances of illness suggestive of hepatitis without icterus were not revealed, the visits were omitted in the study of the groups from hospital C. Investigation of study and control groups was carried out with equal thoroughness.

TABLE 2.—*Cases of Hepatitis, According to Hospital and Type of Blood Product Given, Occurring One to Six Months After Transfusion*

Hospital	A		B		C		Total	
Group	Recipients	Cases	Recipients	Cases	Recipients	Cases	Recipients	Cases
Plasma only.......	17	3	10	0	13	1	40	4
Plasma and whole blood............	50	4	10	0	31	2	91	6
Whole blood.......	49	0	10	0	32	1	91	1
No blood...........	18	0	10	0	12	0	40	0
Total............	134	7	40	0	88	4	262	11

Overt jaundice was chosen by definition as an essential criterion of hepatitis because the diagnosis of hepatitis without icterus, if not made at the time of illness, could hardly be established later.

TABLE 3.—*Cases of Hepatitis, According to Patient's Age and Type of Blood Product Given, Occurring One to Six Months After Transfusion*

	Recipients				Cases of Hepatitis				Attack Rate, %	
	Experimental		Controls		Experimental		Controls			
Age, Yr.	Plasma	Plasma and Whole Blood	Whole Blood	No Blood	Plasma	Plasma and Whole Blood	Whole Blood	No Blood	Experimental	Controls
Under 20..........................	8	12	7	10	0	0	0	0	0.0	0.0
20 to 29..........................	7	17	13	6	0	1	0	0	4.2	0.0
30 to 49..........................	11	24	30	13	2	2	1	0	11.4	2.3
50 to 69..........................	9	25	27	9	2	1	0	0	8.8	0.0
70 and over......................	5	13	14	2	0	2	0	0	11.1	0.0
Total..........................	40	91	91	40	4	6	1	0	7.6	0.8

RESULTS

In the 131 recipients of plasma studied, hepatitis, as defined above, developed in 10, or 7.6%. In contrast, in the 131 controls, hepatitis developed in only one, or 0.8%. All cases of hepatitis had been previously recognized as such by the attending physician. Review of the clinical and laboratory details by the epidemiologist served to confirm the impression that the illnesses were typical of icteric infectious or serum hepatitis. None of the patients had a previous history of hepatitis. None had a history of biliary disease except one (case 8, table 1). No blood donor gave blood to more than one of these persons with hepatitis. Other pertinent details are listed in table 1. There were no deaths caused by hepatitis. The incubation period ranged from 69 to 117 days except in one instance (case 11, table 1) in which it could have been any interval from 25 to 61 days. The day when jaundice was first noted was considered the day of onset.

Hepatitis occurred in patients from hospitals A and C but not from hospital B (table 2); however, this may be explained by the small number of recipients included in the study from hospital B. Six of the 10 hepatitis cases were among 91 patients who received plasma plus whole blood, and the other 4 were among the 40 patients who received plasma only. The control in whom hepatitis developed had received whole blood. Table 3 presents the incidence of hepatitis in patient and control populations by age groups. The absence of hepatitis in the group under 20 years of age may be a chance observation; on the other hand, it is in agreement with the reported experience of others [7] and may be a reflection of relative resistance or of a smaller proportion of icteric disease in this age group.

The 40 patients given plasma but not whole blood each received an average of 1.5 units of plasma. Some of the patients received more than one unit of the same lot. Since minute amounts of plasma can transmit serum hepatitis, multiple units from the same pool of donors may represent little or no greater risk than one unit; on the other hand, it is necessary to consider how many different lots of plasma were received by the average patient. This numbered 1.2.

Each of the 91 patients given plasma and whole blood received an average of 4.5 units of whole blood (totaling 410 units) and 2.4 units of plasma, of which 1.5 were from different lots. The 91 matched controls each received an average of 2.4 units of whole blood (totaling 215 units). Although most of each group were surgical patients, a greater proportion of the controls consisted of patients undergoing elective surgery. This may explain the reason for which they were given less whole blood. This difference in the number of whole blood transfusions does not account for the fact that there were 6 cases of hepatitis among the 91 plasma and blood recipients and only one case in the 91 controls receiving whole blood.

The reports analyzed by Paine and Janeway [1] indicate that about 0.2% of whole blood transfusions cause hepatitis with jaundice. The highest rate (0.35%) was that found by Lehane and co-workers.[8] Even with this high rate of 0.35% one would expect only 1.4 cases in the 91 plasma and whole blood recipients and 0.8 cases in the 91 matched controls. The true incidence of hepatitis with icterus in recipients of whole blood is probably less than 0.35%. There was no correlation between the number of whole blood transfusions per patient and subequent development of serum hepatitis (table 4).

---

[7] Brightman, I. J., and Korns, R. F.: Homologous Serum Jaundice in Recipients of Pooled Plasma, J. A. M. A. 135: 268-272 (Oct. 4) 1947.

[8] Lehane, D.; Kwantes, C. M. S.; Upward, M. G., and Thomson, D. R.: Homologous Serum Jaundice, Brit. M. J. 2: 572-574 (Sept. 10) 1949.

Paine and Janeway[1] estimated, from various reports, the carrier rate of serum hepatitis in the population of blood donors and the percentage of recipients of icterogenic material in whom hepatitis with icterus developed. We did not attempt to use their estimates for the purpose of calculating the number of cases of hepatitis that might have been expected had the plasma not been irradiated. There are too many variables, not the least of which is the actual prevalence of carriers in the donor population, to permit reliable conclusions.

TABLE 4.—*Whole Blood Transfusions Given to Plasma Recipients and Controls Aged Twenty or Over*

Number of Whole Blood Transfusions	Recipients	Cases of Serum Hepatitis No.	Cases of Serum Hepatitis %
0	62	4	6
1	62	2	3
2 to 3	56	3	5
4 or more	45	2	4
Total	225	11	5

It was planned to evaluate the icterogenicity of each lot of plasma; however, of the 56 plasma lots studied, very few had been given to more than a handful of patients. For example, 25 of these lots were given to only one patient each. Nevertheless, table 1 shows that in plasma recipients in whom serum hepatitis developed, a minimum of seven lots were involved (if all 10 cases were acquired through this mechanism). Attempts were made to study the experience elsewhere in the United States with other units of these same seven lots of plasma, but barriers to adequate follow-up prevented further investigation.

It might be suggested that the discovered serum hepatitis was related only to plasma processed early in the experience with this technique and that later improvements in the irradiation procedure allowed the production of virus-free plasma. In reality, however, hepatitis occurred in patients receiving plasma irradiated in 1949, 1950, and 1951 (table 5). The relative icterogenicity of plasma irradiated in different years cannot be properly assessed because of the small numbers of recipients and cases involved.

TABLE 5.—*Cases of Hepatitis Occurring One to Six Months After Transfusion Among Recipients of Irradiated Plasma by Year of Irradiation*

Year of Irradiation	Average Number Different Lots per Recipient	Number of Recipients *	Cases † Number	Cases † Attack Rate, %
1949	1.3	56	7	12.5
1950	1.3	56	1	1.8
1951	1.3	18	2	11.1
Unknown	...	8	0	0.0

* Five persons receiving plasma irradiated in 1949 and 1950 and two persons receiving plasma irradiated in 1950 and 1951 were included in both years.

† Of the four cases of hepatitis in patients who received plasma but not whole blood, three occurred in recipients of plasma irradiated in 1949 and one in recipient of plasma irradiated in 1951.

COMMENT

The purpose of this study was to learn if administration of irradiated plasma, as it is routinely prepared for commercial distribution, carries with it a definite risk of producing serum hepatitis. The tenfold difference, observed in this study, in the attack rates of hepatitis in recipients of irradiated plasma compared with the attack rates in matched controls, suggests strongly that irradiation did little to reduce the risk of serum hepatitis. It seems unlikely that any of the cases observed represented naturally acquired infectious hepatitis, since this disease was not known to be present in the environment of the patients either in or out of the hospital. The scattering of onset dates over a three year period and the observed interval, ranging from 61 to 117 days, between receipt of plasma and onset of jaundice are more suggestive of serum hepatitis. No secondary cases among the family and other contacts developed, as might have been expected had the disease been infectious hepatitis. The fairly close similarity between plasma recipients and matched controls, except for the one item of plasma administration, argues strongly against the possibility that other modes of transmission, such as needles, syringes, or surgical instruments, played a significant role. All three of the hospitals followed the practice of autoclaving syringes and needles after each use. As was stated earlier, human thrombin[6] was not administered to any of the patients in whom serum hepatitis developed.

Obviously the series is too small to allow exact definition of the risk from irradiated plasma, and one may draw conclusions only with regard to the particular lots studied. Since probably at least 9 of 131 plasma recipients acquired serum hepatitis from the plasma and since each had received an average of 1.3 units from different lots, the risk of contracting the disease from a single unit may be calculated as 5%. This estimate does not take into account the 11 recipients who were lost and the 7 who were excluded from the study, although, it indicates an appreciable risk of about 4.5% as described by Brightman and Korns[7] in their study of dried, pooled, unirradiated plasma. Since it is not known how many cases of serum hepatitis would have occurred had the plasma not been irradiated, it is not possible to state categorically that irradiation failed to reduce the icterogenicity of the particular lots studied. These findings raise serious doubts, however, as to the value of this procedure. The question of whether the techniques of irradiation can be or have been improved to uniformly destroy hepatitis virus is not within the province of this report.

SUMMARY AND CONCLUSIONS

One hundred thirty-one recipients of irradiated plasma and 131 matched controls from three hospitals were studied in order to determine the incidence of hepatitis during the period one to six months after plasma administration. Ten cases (7.6%) of acute hepatitis occurred in the group receiving the plasma, and one case (0.8%) occurred among the controls. It is believed that the cases in the group receiving plasma can be attributed to that source and that irradiation of the plasma lots studied failed to prevent or to significantly reduce the transmission of serum hepatitis.

39 Columbia St. (7) (Dr. Albrecht).

CLINICAL NOTES

SPONTANEOUS PERFORATION OF SIGMOID COLON IN PRESENCE OF DIVERTICULOSIS

REPORT OF TWO CASES WITHOUT EVIDENCE OF INFLAMED DIVERTICULA

William T. Fitts Jr., M.D.
and
Lewis D. Anderson, M.D., Philadelphia

It is widely recognized that perforation of the sigmoid colon leading to abscess formation or spreading peritonitis is a common complication of sigmoid diverticulitis. Much less common but occasionally reported is free perforation into the peritoneal cavity occurring soon after the onset of symptoms.[1] The two cases reported here differ, however, from any we have been able to find reported in the literature. Not only was perforation not preceded by symptoms or signs of diverticulitis, but at operation no inflamed diverticula were noted, although diverticula containing inspissated feces were palpated on either side of the perforation in both instances. We believe it is important to call attention to the possibility of spontaneous perforation in the presence of diverticulosis. In operating on patients with acute abdominal conditions, the surgeon at times discovers peritonitis without obvious cause. We are convinced from our experience with these two patients that the possibility of perforation of the sigmoid colon should not be dismissed in these instances because of the lack of inflammatory signs in the sigmoid and that a most painstaking examination of the sigmoid may at times be required to locate the perforation. The presence of diverticulosis should alert the surgeon to this possibility.

REPORT OF CASES

Case 1.—A 65-year-old white man entered the Hospital of the University of Pennsylvania March 8, 1952, because of abdominal pain, which had begun suddenly three hours previously. Prior to this illness he had considered himself in excellent health and had been working as a laborer. Careful questioning elicited no admission of previous symptoms of gastrointestinal disease. The pain for which the patient came to the hospital was generalized and severe, and soon after the onset of pain he began to vomit.

On examination, immediately after admission, the patient was thought to be in shock, as evidenced by pale, cold, sweaty skin, a weak pulse, and a blood pressure of 70/40 mm. Hg. Peristalsis was not audible. The rectal temperature was 103 F. The abdomen was tender throughout, with generalized muscular rigidity and rebound pain. A rectal examination disclosed no abnormalities. The hemoglobin level was 12.5 gm. per 100 cc. (Klett-Summerson photoelectric colorimeter), and the leukocyte count was 19,000 per cubic millimeter. Urinalysis showed no abnormalities.

Whole blood was given intravenously, and within 45 minutes the patient's blood pressure had risen to 125/55 mm. Hg. A diagnosis of a massive mesenteric vascular occlusion was made, and the patient was operated on by one of us (W. T. F.), with general anesthesia administered by means of endotracheal technique, about 90 minutes after admission. The peritoneum was opened by an incision in the lower midline. Feces were noted in the right lower quadrant of the peritoneal cavity, but no perforation was found in the appendix, cecum, or ascending colon. Diverticula containing inspissated feces were palpated in a 6 in. (15.2 cm.) segment of midsigmoid colon, but no signs of inflammation were apparent, and no perforation was readily visualized. This portion of the colon was mobilized by division of the lateral peritoneal reflexion. A careful examination of the area showed a 1½ cm. perforation on the antimesenteric border hidden beneath a normal appearing fat tab. An 8 in. (20.3 cm.) segment of sigmoid colon with the perforation at its center was exteriorized through a left lower quadrant stab wound. The edges of the perforated bowel were sutured about a soft rubber tube.

After the operation the patient was treated with continuous gastric suction drainage, intravenously administered fluids, penicillin, and streptomycin. On the seventh postoperative day the exteriorized segment of sigmoid was excised by electric cautery. The patient was discharged March 23, 1952, with his wounds well healed, his colonic stoma functioning well, and his temperature normal. On April 24, he was readmitted for closure of the stoma. Roentgen examination of the colon prior to closure showed diverticulosis without evidence of diverticulitis. The patient had an uneventful recovery after stoma closure, and, at the time of discharge, May 14, 1952, he was having normal bowel movements. Since that time he has been well.

Case 2.—A 57-year-old white man entered the Hospital of the University of Pennsylvania Aug. 8, 1952, because of severe abdominal pain of three hours' duration. The pain had begun suddenly during defecation, immediately after the patient had eaten a normal breakfast. The pain radiated from the periumbilical region to both sides of the abdomen. The patient tried to take a sodium chloride solution enema soon after onset of the pain but stopped after administering one cupful because of exaggeration of the pain. The patient had considered himself to be in good health until this illness.

Physical examination after admission to the hospital revealed an acutely ill man with excruciating abdominal pain. The blood pressure was 130/80 mm. Hg, the pulse rate was 80 beats per minute, the respiratory rate was 22, and the rectal temperature was 100 F. Peristaltic sounds were not heard. The entire abdomen was rigid and tender, but the symptoms were severest in the right upper quadrant. No tenderness or masses were noted on rectal examination. The hemoglobin level was 15 gm. per 100 cc., and the leukocyte count was 14,500 per cubic millimeter. Urinalysis showed no abnormalities.

The patient was operated on by one of us (W. T. F.), with general anesthesia administered by means of an endotracheal technique, about one and a half hours after admission. Because the signs were severest in the right upper quadrant, a preoperative diagnosis of perforated duodenal ulcer was made, and the abdomen was opened by a short incision in the right subcostal region. Cloudy fluid was present in the right upper quadrant, but no perforation could be found. Palpation of the lower abdomen through the upper abdominal incision revealed free feces in the peritoneal cavity. An incision in the lower right rectus region was then made. The lower peritoneal cavity contained feces and large, undigested food particles. Several diverticula containing inspissated feces were palpated in the sigmoid colon, but no hyperemia, fibrinous exudate, or other sign of diverticulitis was noted. A careful search of the involved area of sigmoid, after mobilization by division of the lateral peritoneal reflexion, showed a 1 cm. perforation in the midsigmoid on the antimesenteric border. About 8 in. of the involved segment was brought out through a stab wound in the left lower quadrant, and the edges of the perforation were sutured about a soft rubber tube.

Postoperatively, the patient was treated with blood and other intravenously administered fluids, penicillin, streptomycin, and intestinal suction drainage with a Miller-Abbott tube. His postoperative course was good, except for the development of a wound infection in the upper part of the right rectus wound.

From the Harrison Department of Surgical Research, University of Pennsylvania School of Medicine, and the Department of Surgery, Hospital of the University of Pennsylvania.

[1] Weeks, A., and Brooks, L.: Ruptured Diverticulitis with Generalized Peritonitis, S. Clin. North America 6: 375-376, 1926. Weeder, S. D.: Perforated Diverticulitis of the Sigmoid, Ann. Surg. 93: 782-785, 1931. Taylor, V. J. M.: A Case of Perforated Diverticulitis, Brit. M. J. 1: 1124-1125, 1932. Lazarus, J. A.: Perforated Sigmoiditis with Generalized Peritonitis, Am. J. Surg. 22: 284-289, 1933.

He was discharged Sept. 12, 1952, afebrile and with the colonic stoma functioning well. His stoma was closed without incident in January, 1953, and he has since been well.

COMMENT

Although diverticula were present in the sigmoid colon in these two patients, no signs of diverticulitis were noted at operation, and no symptoms indicating bowel inflammation had been present before the sudden onset of acute pain, indicating perforation. We do not know the cause of the perforation in either instance, but we believe tightly packed feces in a diverticulum may have produced obstruction and gangrene of the wall of the diverticulum. The perforation was almost certainly sudden in both instances, as indicated by the sudden onset of the symptoms and the absence of signs of a walling-off process at operation. Unless the sigmoid colon had been mobilized and carefully examined in these two instances, the perforation would not have been found. The only sign pointing to the perforation was the presence of surrounding diverticula, which were not inflamed.

SUMMARY

Two cases of spontaneous perforation of the sigmoid colon in the presence of diverticulosis are reported. Neither patient had symptoms or signs of diverticulitis. If a careful search of the sigmoid colon had not been made, we would not have identified the perforation in either instance.

CHLOROQUINE DIPHOSPHATE IN TREATMENT OF DISCOID LUPUS ERYTHEMATOSUS

Leon Goldman, M.D.
Donald P. Cole, M.D.
and
Robert H. Preston, M.D., Cincinnati

Since the initial success of the treatment of lupus erythematosus with quinacrine (Atabrine) by Prokoptchouk [1a] and Popoff and Kutinscheff [1b] and later by Page,[2] in Europe, attempts have been made to find other less toxic antimalarial agents. Numerous investigators [3] in this country also have had good results with the use of quinacrine in this disorder, but they have warned about its toxic effects, which may include production of fatal aplastic anemia.[3b]

After conferences with Dr. Leon Schmidt,[4] director of malarial research at the Institute of Medical Research, Christ Hospital, chloroquine was selected as investigative material, because it is distinctly less toxic, it may be found in the skin in appreciable amounts after oral ingestion, and it does not discolor the skin as does quinacrine. A review of the literature and our own experience revealed that the toxic effects of chloroquine diphosphate are insignificant. Toxic symptoms may include pruritus, nausea, anorexia, diarrhea, headache, difficulty in visual accommodation, and weight loss.[5] Rarely, lichenoid dermatitis may occur.[6] With Dr. Schmidt, we are now making detailed assay studies of the patterns of serum and skin distribution of chloroquine diphosphate.

Patients receiving chloroquine diphosphate for lupus erythematosus have been under observation for six months. The average dose has been 0.25 gm. twice daily for one or two weeks followed by 0.25 gm. daily for four to six weeks. In some patients the initial dose was 0.25 gm. three times daily for one or two weeks. These preliminary studies indicate that chloroquine diphosphate is as effective as quinacrine in the treatment of discoid lupus erythematosus (see the table). In some patients the initial response appeared to be slower than is usually the case with quinacrine. New lesions developed in three patients while they were receiving treatment, although the previous lesions continued to improve. It is important to note that two patients who had severe nausea and emesis as a result of quinacrine therapy tolerated chloroquine without difficulty. Only one patient in the entire series was unable to continue chloroquine therapy because of repeated nausea and emesis, although the patient's condition was greatly improved by this therapy. Another possible toxic reaction is weight loss. One patient with chronic discoid disseminated lupus erythematosus reported a weight loss of 18 lb. (8.2 kg.) during the 11 week period she received the drug, but she showed great improvement. One patient with subacute disseminated lupus erythematosus had abdominal cramps after each dose, and one with the same form of the disease had diarrhea while taking the drug. Both these patients continued treatment, with improvement in their conditions. Chewing gum has been used to partially relieve the unpleasant aftertaste of which some patients complained. Although three patients in this series had subacute disseminated lupus erythematosus, it is not recommended at present that such patients be included in routine clinical surveys.

Results of Use of Chloroquine Diphosphate in Lupus Erythematosus

Type of Lupus Erythematosus	No. of Patients	Average Duration of Therapy, Wk.	Results		
			Great Improvement	Improvement	No Change
Chronic discoid localized	12	7	7	0	5
Chronic discoid disseminated	6	11	4	2	0
Subacute disseminated	3	9	3	0	0

From the Department of Dermatology and Syphilology of the University of Cincinnati College of Medicine.

The chloroquine diphosphate used in this study was supplied by Winthrop-Stearns, Inc., New York.

The analyses for chloroquine were done by Dr. Leon H. Schmidt, Director, Institute of Medical Research, Christ Hospital, Cincinnati.

1. (*a*) Prokoptchouk, A. J.: Traitement du lupus érythémateux par l'acriquine, Vestnik. venerol. i dermat. **213**: 23, 1940; abstracted, Yearbook of Dermatology and Syphilology, 1952, p. 92. (*b*) Popoff, L., and Kutinscheff, M.: Case Presentations, Dermat. Wchnschr. **116**: 186, 1943.

2. Page, F.: Treatment of Lupus Erythematosus with Mepacrine, Lancet **2**: 755, 1951.

3. (*a*) Wells, G. C.: Treatment of Chronic Discoid Lupus Erythematosus with Atabrine, J. Invest. Dermat. **19**: 405, 1952. (*b*) Sawicky, H. H., and others: Therapeutic Assays of Skin and Cancer Unit of New York University Hospital: Assay 7: Quinacrine Hydrochloride (Atabrine Hydrochloride) for Chronic Discoid Lupus Erythematosus, ibid. **19**: 397, 1952. (*c*) Sulzberger, M. B.: Personal communication to the authors.

4. Schmidt, L.: Personal communication to the authors.

5. (*a*) Berliner, R. W., and others: Studies on the Chemotherapy of the Human Malarias: 6. The Physiological Disposition, Antimalarial Activity, and Toxicity of Several Derivatives of 4-Aminoquinoline, J. Clin. Investigation **27**(pt. 2): 98, 1948. (*b*) Alving, A. S., and others: Studies on the Chronic Toxicity of Chloroquine (SN-7618), ibid. **27** (pt. 2): 60, 1948. (*c*) Chloroquine-Diphosphate—A Newly-Standardized Antimalarial Drug, News and Comment, Bull. U. S. Army M. Dept. **7**: 834, 1947. (*d*) Maier, J.: Field Trial of Chloroquine (SN 7618) as a Suppressive Against Malaria in the Philippines, Am. J. Trop. Med. **28**: 407, 1948.

6. Alving.[5b] Craige, B., Jr., and others: A Lichen-Planus-Like Eruption Occurring During the Course of Chloroquine Administration, J. Clin. Investigation **27** (pt. 2): 56, 1948.

SUMMARY

Preliminary clinical trials have shown chloroquine diphosphate to be of value in the treatment of the chronic discoid phase of lupus erythematosus. This antimalarial agent is less toxic than quinacrine (Atabrine), but, with prolonged administration, the possibility of the occurrence of toxic symptoms must be considered.

3231 Burnet Ave. (29) (Dr. Goldman).

ALLERGIC REACTION TO STREPTOKINASE-STREPTODORNASE SOLUTION GIVEN INTRAPLEURALLY

W. Orr Goehring, M.D.
and
John J. Grant, M.D., Pittsburgh

The use of streptokinase and streptodornase recently has gained much popularity, especially in the treatment of hemothorax in which clotted blood and fibrinous and purulent accumulations are present. Usually these enzymes are injected intrapleurally in the form of a freshly made sodium chloride solution. They cause a rapid dissolving of the blood clots and fibrinous exudates, thus facilitating removal of the material by aspiration.

Since streptokinase and streptodornase are antigenic, the possibility of the occurrence of dangerous anaphylactoid reactions, especially when the enzymes are injected intrapleurally, should be considered and watched for. Until recently, no severe reactions have been reported, except that in a case in which the outcome was fatal when the drug was injected intrathecally. Literature accompanying the commercial preparations of the product state that allergic reactions have been minimal but nevertheless should be watched for. Carr and Robbins,[1] in a series in which they used combined streptokinase and streptodornase intrapleurally for hemothorax, noted some temperature elevation in all their patients, and 6 of 10 patients complained of pleural pain; all had a feeling of malaise; however, no unusual reactions were noted. In a series of 48 cases, reported elsewhere but summarized by these authors, in which the drug was used similarly, no reactions were noted. Miller and Long [2] did not notice ill effects from the intrapleural administration of the drug in their series of cases. Recently, Baum and Oransky [3] reported an unusual reaction following intrapleural administration of combined streptokinase and streptodornase, which they believed was a pyrogenic and anaphylactoid reaction secondary to the administration of these enzymes. We wish to report a case similar to the one reported by Baum and Oransky, in which the patient's reaction in a subsequent skin test with the solution was strongly positive.

REPORT OF A CASE

A 51-year-old white man entered the hospital Dec. 3, 1952, complaining of pain in the left side of the chest, with shortness of breath, which had begun after an accident in which he had slipped and fallen, injuring his chest wall. A review of the patient's systems and history revealed nothing remarkable. Physical examination on admission revealed a well-developed and well-nourished man in no acute distress. The pulse rate and blood pressure were normal, and there was no external evidence of injury. On examination, the chest showed decreased breath sounds on the left side, with evidence of hemothorax. Initial blood studies showed 3,300,000 red blood cells per cubic millimeter, 10.8 gm. of hemoglobin per 100 cc. (Sheard and Sanford photocolorimeter), and 9,750 white blood cells per cubic millimeter with 64% polymorphonuclears and 36% small lymphocytes.

Results of other laboratory studies were essentially normal. Roentgenograms showed a fracture of the fourth rib on the left in the anterior axillary region and a hydropneumothorax on the left side, with a fluid level at the ninth rib posteriorly. Also, collapse of the left upper lung lobe and partial collapse of the left lower lobe were noted.

Initially, the patient was treated with penicillin intramuscularly and whole blood transfusions. Thoracentesis of the left chest was done about every third day, an average of 300 cc. of dark blood being removed with each aspiration. Since the later aspirations were not satisfactorily removing the blood because of its thickness, it was decided to inject streptokinase-streptodornase solution intrapleurally. On Dec. 15, 1952, after 420 cc. of blood had been aspirated, 100,000 units of streptokinase and 25,000 units of streptodornase in 20 cc. of a sterile isotonic sodium chloride solution was injected through the same needle into the left pleural cavity. A few hours later the patient began to have chills, restlessness, and profuse perspiration. He also had pain in the left side of the chest and complained of shortness of breath. About five hours after the injection, the patient's condition was critical, the blood pressure being 70/40 mm. Hg, the pulse rate 135 beats per minute and weak, the respiratory rate 25, and the temperature 103 F (axillary). No rash was noted. The patient was immediately placed in an oxygen tent. He was given meperidine (Demerol) and 1,500 cc. of plasma, and the dosage of the antibiotic he had been receiving was increased. His condition remained critical, and a few hours later he was given 1,000 cc. of whole blood as well as cardiac stimulants. On the morning of Dec. 16, the patient's condition was still poor; 600 cc. of dark blood was removed easily from the left pleural cavity. Blood studies at this time showed 4,140,000 red blood cells, 12.2 gm. of hemoglobin per 100 cc., and 41,500 white blood cells, with 98% polymorphonuclears and 2% small lymphocytes. A culture of the thoracic fluid at this time was negative for bacteria. That evening, the patient felt a little better; his temperature was 98.2 F (axillary), his pulse rate 112 beats per minute, and his respiratory rate 36. On Dec. 17, an electrocardiogram showed auricular paroxysmal tachycardia, and roentenograms showed a considerable increase in the amount of fluid in the left side of the chest, the upper limit being the fifth interspace posteriorly. The mediastinum and heart were displaced to the right.

After this episode, the patient began to improve. Pleuracenteses were done every two to three days, the fluid aspirated bing less viscous and a little brighter red in color. Much larger quantities were aspirated. The blood cell counts returned to normal. Subsequent roentgenograms showed a decrease in the amount of pleural effusion but also that the left lung had failed to expand fully. The patient was discharged Jan. 3, 1953, in an improved condition.

During examination of the patient about five weeks after the streptokinase-streptodornase injection had been given, a skin test was done. A wheal appeared on the right forearm after injection of the same solution that had been injected intrapleurally. Shortly afterward, severe edema and redness of the entire flexor surface of the forearm, with axillary adenitis, developed. This subsided subsequently with local therapy. The patient will soon undergo a decortication procedure on the left lung.

From the Department of Surgery, Columbia Hospital.

[1] Carr, D., and Robbins, S. G.: Streptokinase and Antibiotics in the Treatment of Clotted Hemothorax, Ann. Surg. **133**: 853 (June) 1951.

[2] Miller, J. M., and Long, P. H.: The Treatment of Hemothorax with Particular Reference to the Use of Streptokinase and Streptodornase, U. S. Armed Forces M. J. **3**: 1061 (July) 1952.

[3] Baum, G. L., and Oransky, P.: Unusual Reaction to Intrapleural Administration of Streptokinase and Streptodornase, J. A. M. A. **149**: 1012 (July 12) 1952.

COMMENT

As stated, the occurrence of reactions after intrapleural use of streptokinase-streptodornase solution has not been common; however, physicians must be on the alert for such a possibility. Since in our patient no skin test was done prior to instillation of the solution, it is not possible to evaluate the significance of the severe reaction to a skin test done five weeks after intrapleural administration of the drug. Despite the increased pleural effusion, as seen in roentgenograms, this case appears to be one of anaphylactoid reaction due to streptokinase and streptodornase rather than one of shock due to hemorrhage and is reported as such.

2244 Milligan Ave. (18) (Dr. Grant).

SEVERE IMMEDIATE CONSTITUTIONAL REACTION TO PENICILLIN

Arthur R. Sohval, M.D., New York

Although unfavorable reactions to penicillin therapy are well known, the occurrence and frequency of serious, life-threatening, immediate constitutional reactions are not generally recognized. The few published reports describe two principal types of prompt systemic reaction. Fatal and near-fatal penicillin anaphylaxis has recently been reviewed by Siegal, Steinhardt, and Gerber.[1] An anaphylactic-like shock state, occasionally fatal, was discussed in a recent issue of THE JOURNAL by Mayer and others,[2] and similar cases have been recorded.[3] An entirely different type of reaction, characterized by sudden weakness and angor animi and with no recognizable evidence of hypersensitivity or circulatory or respiratory disturbance, has been described by Batchelor, Horne, and Rogerson.[4] The fact that Mayer's group observed six cases within a relatively short period of time and Batchelor's group encountered eight cases over an interval of seven months (an incidence of three cases per thousand injections) suggests that severe immediate reactions occur more often than indicated by the relatively few published cases.

This is the report of an alarming reaction that occurred in a patient immediately after intramuscular injection of an aqueous suspension of procaine penicillin. The reaction pattern did not conform to either of the two previously described major types of immediate reaction, although some features of each were manifested.

REPORT OF A CASE

The patient was a 56-year-old physician who had no personal or family history of allergic manifestations. He had received approximately 12 intramuscular injections of procaine penicillin in aqueous suspension for three separate suppurative infections during the previous two years. A questionable skin reaction followed the first injection two years ago. The reaction consisted of a fine desquamation of the palms three to four weeks after the injection. Procaine hydrochloride (Novocaine) has been tolerated without ill effects on numerous occasions. Early in the morning of Feb. 5, 1953, the patient noted malaise and had a slight cough. That afternoon he experienced several shaking chills, and his temperature rapidly rose to 105.8 F. Examination disclosed no etiological findings, and he was given an antipyretic mixture containing acetylsalicylic acid, acetophenetidin, and codeine sulfate. The next morning the patient's temperature was 104 F, and the sputum was blood-tinged. When he was examined at 3 p. m., the temperature was 104.2 F, the pulse 120 per minute, and the respiratory rate 22 per minute. The chest was clear. The leukocyte count was 23,600 per cubic millimeter, of which 39% were nonsegmented, and 53% were segmented polymorphonuclear neutrophils. Because of the sanguinous sputum and the sustained hyperpyrexia, a streptococcic pneumonia was suspected, and antibiotic therapy was instituted. An aqueous suspension of crystalline procaine penicillin G (Crysticillin), containing 600,000 units in 2 ml., was administered intramuscularly in the left buttock with the patient in a prone position. Concurrently, 500 mg. of erythromycin, an antibiotic derived from Streptomyces erythreus, was administered orally, and was to be repeated at six hour intervals. Six hours later the temperature was 103 F, and the pulse and respiratory rates were 118 and 20 per minute respectively. For the first time fine crepitant rales were heard over both lower lung fields posteriorly. Another injection of procaine penicillin G suspension, (Flo-Cillin) 1 million units in 1.7 ml., was given in the right buttock. On the morning of the third day there was marked subjective improvement, and the temperature was 101 F, dropping to 100.2 F in the afternoon. The pulse and respiratory rates were 80 and 20 per minute respectively. Another intramuscular injection of 1 million units of procaine penicillin G suspension in 1.7 ml. was administered in the left buttock. This was given 18 hours after the second injection, and the same technique was used in all three instances, with the usual precaution of withdrawing the syringe plunger prior to injection. There was no reason to suspect penetration of a blood vessel, and the site of injection was not massaged.

Immediately on withdrawal of the needle after the third injection, the patient complained of vertigo, which became more intense as he turned over to the supine position. Simultaneously, he complained of a peculiar metallic taste in his mouth and a sense of nasal obstruction. He also had a feeling of thoracic constriction and warmth as well as severe palpitations. For a few seconds the patient was unable to move his right upper and lower extremities. His speech was slurred, and his tongue felt "thick" for approximately 10 minutes. During this time there was an ashen gray pallor of the face, and the pulse was full and bounding, with a rate of 150 per minute. There was no sweating, faintness, or evidence of bronchial or laryngeal obstruction. The patient displayed intense anxiety and fear of impending death, accompanied by a staring expression and hyperventilation. Overbreathing promptly stopped when it was called to the patient's attention. Since there was no circulatory collapse or respiratory embarrassment, no medication was administered. Recovery from the alarming phase of the reaction (vertigo, hemiparesis, slurred speech, palpitations, thoracic compression, and angor animi) was complete in 15 minutes. The temperature fell to normal levels that evening, and there was rapid clearing of the pulmonary findings under continued administration of erythromycin. A feeling of fatigue persisted for a day. The patient had fully recovered on the eighth day of the illness. Skin sensitivity tests, passive transfer studies, and precipitin reaction tests were not performed.

COMMENT

The reaction pattern in this patient is difficult to classify. It lacked the manifestations of shock, dyspnea, sweating, and disturbances of consciousness that characterize anaphylactic or nitritoid reactions. On the other hand, vertigo, transitory neurological phenomena, an odd taste in the mouth, sense of thoracic compression, and

---

1. Siegal, S.; Steinhardt, R. W., and Gerber, R.: Fatal and Near-Fatal Penicillin Anaphylaxis: Three New Cases With a Note on Prevention, J. Allergy **24**: 1 (Jan.) 1953.
2. Mayer, P. S., and others: Penicillin Anaphylaxis, J. A. M. A. **151**: 351 (Jan. 31) 1953.
3. Yuval, A.: Reaction to Procaine Penicillin, letter to the editor, Lancet **1**: 163 (Jan. 19) 1952. Smolnikoff, V. P.: Reaction to Procaine Penicillin, letter to the editor, ibid. **1**: 1022 (May 17) 1952.
4. Batchelor, R. C. L.; Horne, G. O., and Rogerson, H. L.: An Unusual Reaction to Procaine Penicillin in Aqueous Suspension, Lancet **2**: 195 (Aug. 4) 1951.

angor animi present in this case have been described in anaphylactic-like reactions to procaine penicillin. Dizziness, weakness, "fluttering in the chest," peculiar taste, and angor animi were also encountered by Batchelor, Horne, and Rogerson [4] in a series of reactions that they believed were entirely nonallergic. So firm was their conviction in this respect that five of their eight patients were subsequently re-treated with the same drug without untoward results.

CONCLUSIONS

In view of the gravity of immediate constitutional reactions to penicillin in its various forms, it is hardly necessary to stress careful selection of patients. Therapeutic indications should be rigid. Screening to eliminate persons with previous histories of untoward penicillin reactions is necessary but is not foolproof. Meticulous attention to injection technique, in order to avoid entry of penicillin into the blood stream, is also essential but does not assure that unrecognized penetration of a vein will not occur. Finally, emergency medication consisting of an injectable vasoconstrictor and an antihistaminic should be immediately available.

It is hoped that more diligent reporting and compilation of casuistic data may lead to an improved understanding of the various pathogenetic mechanisms and to reduction or elimination of serious reactions to penicillin.

ADDENDUM

Since this report was prepared, the problem of immediate anaphylactic reactions to penicillin has received further attention.[5] Severe constitutional reactions were recorded in seven patients with a fatal outcome in five.

1155 Park Ave.

[5] Feinberg, S. M.; Feinberg, A. R., and Moran, C. F.: Penicillin Anaphylaxis: Nonfatal and Fatal Reactions, J. A. M. A. 152: 114 (May 9) 1953.

The Nervous Child.—The discussion deals with an amorphous group whose symptoms are not definite enough to be dignified with such titles as anxiety neurosis et cetera. The mother will say that he is very highly strung or that his nerves are bad; that he is too sensitive; that he is prone to tears. . . . The teacher may complain that the child is restless, cannot concentrate or fix his attention. Various behaviour disorders may be added to the picture; habit disorders such as stammering, bed-wetting, nail-biting, skin-picking and masturbation appear from time to time. . . . These children are just too soft and give excessive emotional response to ordinary stimuli. They need to be toughened and to be assisted to acquire reasonable emotional control. The phrase used as the title, "The Nervous Child" has a bad influence. When a parent is told that his child has bad nerves, it conveys to him that there is a disease process in very vital tissues. And disease calls for protection. With the added protection the subject becomes still more sensitive. Thus a vicious circle is established. . . . Yet, if one can convey to the parent that his child is emotionally ill while the nervous system is organically quite sound, it produces an entirely different orientation. Instead of looking for direct intervention by the doctor, he will begin to seek for factors in the environment. . . . One must especially guard against a sudden change from coddling to a Spartan regime. One may point out that a limb which has been protected by a splint for any length of time will be very soft and sensitive at first. It will need carefully graded exercises until it gradually regains its strength and is able to function like the normal one. A hothouse plant, if suddenly exposed to the elements, will succumb; but if protection is withdrawn little by little the adaptation process will go on until the hothouse plant becomes as tough as the plant that grew outside from the beginning.—H. M. North, M.D., The Nervous Child, *Medical Journal of Australia,* May 2, 1953.

A SYRINGE SHIELD USED IN INJECTING RADIOACTIVE GOLD

Paul Getzoff, M.D.
John Hidalgo, M.S.
and
Joe Meyer, Ph.D., New Orleans

Since the introduction by Flocks and others [1] of the concept and technique of employing radioactive gold (AU^{196}) in the treatment of prostatic carcinoma, we have been interested in this fresh approach and the promising results obtained. We have found Flocks' operative method completely satisfactory. The technique for concentrating a solution of radioactive gold in the prostate gland consists of the direct injection of the material into the organ suprapubically, retropubically, and through a spinal needle inserted perineally. Obviously, certain problems are involved with any method that includes use of radioactive isotopes.

The broad principles involved in this operation may be briefly summarized as follows: 1. The radioactive gold must be injected in such a manner as to assure maximum diffusion of the solution throughout the prostate gland. 2. Retrograde leakage through the tract produced by the needle should be minimal. 3. Depth of the injection must be completely controlled so that the rectal wall is not penetrated. 4. The surgeon, his assistants, and other operating room personnel who handle the "hot" syringe must be guaranteed reasonable safety.

We have designed and used successfully a simple syringe shield constructed to fulfill the requirements described. When the radioactive gold solution is injected with various syringes, the stony indurated character of the malignant prostatic tissue is manifested by the difficulty encountered in forcing the solution into the glandular substance. Our apparatus has considerable mechanical advantage. The surgeon is able to inject the solution with almost "finger tip" ease and with both mechanical preciseness and a minimal loss of the solution by leakage back into the bladder through the sites of injection. The screwing motion of injection obviates the possibility of "binding" between the plunger and barrel of the syringe and minimizes the danger of the syringe breaking during the injection. The latter has been a frequent occurrence with ordinary syringes. Safety factors, which are of inestimable importance in the handling of radioactive material, are preserved. The syringe is handled with complete ease by the physicist and operating personnel. This instrument is easily made by a skilled machinist. It is economical, sturdy, easy to clean, and can be conveniently assembled and disassembled in a few seconds.

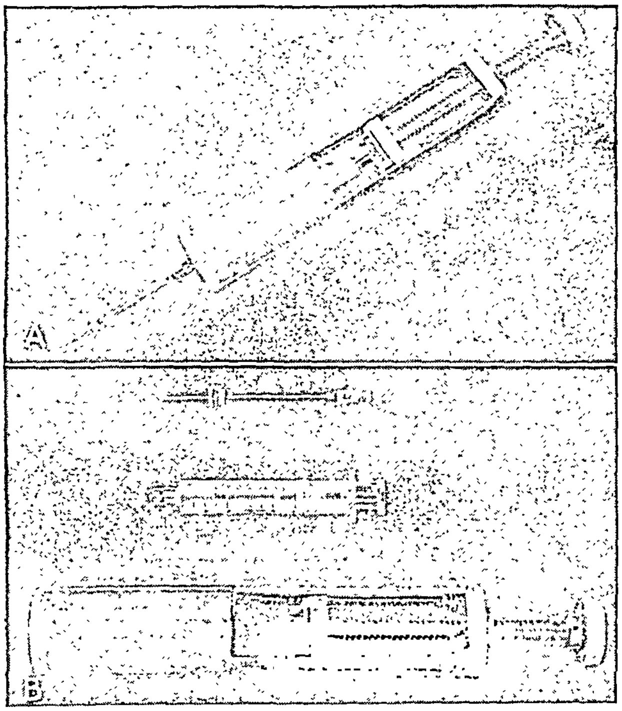
An additional feature is the guard placed on the needle. Spinal needles (19 gage) are fitted with easily adjustable guards that resemble the type used on ornamental tie pins. The desired depth of injection is estimated, and the guard is adjusted accordingly by the

---

From the departments of urology and biophysics, Touro Infirmary, the Department of Physics, Tulane University, and the Radioisotope Unit, Veterans Administration Hospital, New Orleans.

[1] Flocks, R. H.; Kerr, H. D.; Elkins, H. B., and Culp, D.: Treatment of Carcinoma of the Prostate by Interstitial Radiation with Radio-Active Gold (Au198): Preliminary Report, J. Urol. 68: 510-522, 1952.

physicist in charge of filling the syringes. Several needles are kept available with the guards adjusted to suit variable conditions in the same patient. The use of these needle guards has made possible greater accuracy and safety in injections into nodular glands where the penetration distance differs at various sites.



A, shield enclosing syringe for injection of radioactive gold solution; *B*, shield, syringe, and needle with adjustable guard.

The outside diameter of the shield is 1⅞ in. A 10 cc. Luer-Lok syringe is surrounded by a shield of lead 7/16 in. thick and encased in a brass tube ⅛ in thick. The drive screw is double threaded, with a ¼ in. pitch providing a mechanical advantage of 5.5×. The syringe plunger is 0.25 square in. in cross section. This adds a factor of 4× for pressure units. Thus, a force of 1 lb. exerted on the perimeter of the screw will yield 5.5 (mechanical advantage of drive screw) × 4 (pressure units factor) × 1 (lb. of exerted pressure) = 220 lb. per square inch. The knob also adds some mechanical advantage. It has a diameter of 1½ in. and a radius of 7/32 (0.218) in. A ratio of the imparted force (F) to the resultant force (R) is a measure of the effective radii.

$$\frac{F}{0.625} = \frac{R}{0.218}$$

$$\frac{F}{R} = \frac{0.625}{0.218} = 2.87$$

Mechanical advantage obtained with 1 lb. of pressure applied to the perimeter of the screw is as follows:

Mechanical advantage 22.0 × 2.87 = 63.1 ×

The markings on the guide bar are calibrated into 10 divisions indicating 1 cc. each. This enables the physician to measure with reasonable accuracy (i. e., by observing the pointer) the millicuries in the solution being injected.

SUMMARY

A new and simple type of syringe shield is described for use in the injection of radioactive gold (Au^{198}) in carcinoma of the prostate gland as described by Flocks and others.[1] The device is economical and is devoid of complicated delicate adjustments.

This apparatus makes possible effective, safe, accurate, and relatively easy injection by virtue of its high mechanical advantage (63.1 ×). Its value is further enhanced by an adjustable guard placed on the needle, which prevents the insertion of the needle beyond a predetermined point.

3439 Prytania St. (Dr. Getzoff).

SALMONELLA MONTEVIDEO INFECTION FOLLOWING USE OF POWDERED EGG YOLK

Capt. Samuel C. Southard (MC), Army of U. S.
Major Walter B. Watson
and
Capt. Arnold J. Capute, (MC), U. S. Army

The following case of Salmonella montevideo infection is reported because of the unusual probable source of infection, dry powdered egg yolk. In giving treatment for or attempting to prevent recurrences of such infections, physicians should consider this possible source. A letter was sent to the packing company to determine whether this strain of S. montevideo had been isolated from their product, dry powdered egg yolk. They replied immediately that they had been informed by the Federal Food and Drug Administration that S. montevideo had been recovered from the dry egg yolk tested in the Food and Drug Administration laboratories but that this finding had not yet been confirmed by their own laboratories.

REPORT OF A CASE

A 3-year-old white girl was admitted Nov. 13, 1952, to the pediatric service of the U. S. Army Hospital, Fort Hamilton, Brooklyn, N. Y., with the chief complaint of diarrhea. The patient had been under the care of this hospital's pediatric service for the previous year and had been known to have incomplete cystic fibrosis of the pancreas. She had been doing well and had been gaining weight by following a celiac type of diet, until four days prior to admission, when she vomited once. She had no other symptoms until diarrhea began two days prior to admission. This consisted of loose, dark brown to black, watery stools, with a small amount of thick mucus. At this point, the patient was seen by another physician, who prescribed dietary restrictions and administration of a kaolin mixture and 300,000 units of procaine penicillin intramuscularly. The white blood cell count at that time was 10,200 per cubic millimeter, with 84% neutrophils and 16% lymphocytes. The following day, diarrhea became more profuse, and the father, a physician, noted what appeared to be streaks of bright red blood. Because of the patient's history of cystic fibrosis, she was admitted to the hospital.

Physical examination on admission revealed a thin, poorly nourished child weighing 25 lb. (11.3 kg.). The throat, fauces, and tonsils were injected. The temperature was 101.4 F. The child was put to bed, was placed on an appropriate constipating diet, and was given procaine penicillin, 300,000 units intramuscularly every 12 hours. The diarrhea subsided in 24 hours. The temperature returned to normal in 48 hours, remained normal for 48 hours, and then returned to 101 F, with recurrence of the pharyngitis. This responded without difficulty to administration of additional penicillin and the usual symptomatic treatment. Results of urinalysis were normal. The white blood cell count showed a slight increase of the neutrophils but was otherwise within normal limits. A throat culture showed a hemolytic strain of type A beta hemolytic Streptococcus and a hemolytic strain of Staphylococcus aureus. Stool examination showed the presence of gross blood, and culture showed the presence of a strain of Salmonella organisms. This culture was sent to the First Army

---

From the Pediatric Service, U. S. Army Hospital, Fort Hamilton, Brooklyn, N. Y.

Dr. Southard has been released from the Army and is now practicing in Ventnor City, N. J.

Medical Laboratory, where the strain was identified as S. montevideo. The child was then given a mixture of sulfadiazine and sulfamerazine while awaiting the results of sensitivity tests of the S. montevideo isolated.

Family history revealed that on Nov. 6, 1952, the girl's younger brother, aged 11 months, had had a short episode of mild diarrhea, which was treated successfully with dietary restriction and use of a kaolin mixture. On Nov. 9, the patient's mother also had a short episode of mild diarrhea, which subsided after two days without therapy. Concomitantly with the hospitalization of the 3-year-old girl, a survey of the family revealed that the patient's 11-month-old brother and her father also harbored the same strain of bacteria. The infant was admitted to the hospital to receive therapy in an attempt to abolish the carrier state. It is interesting to note that this family first used powdered dried egg yolk for the infant on about Nov. 1, 1952, and six days later diarrhea developed in him.

Sensitivity tests (broth dilution method) showed that this strain of S. montevideo was not inhibited by bacitracin, penicillin, or the sulfonamide mixture. Slight inhibitions were produced by concentrations of 10 μg per cubic centimeter of aureomycin, 30 μg per cubic centimeter of oxytetracycline (Terramycin), and 10 μg per cubic centimeter of chloramphenicol. Inhibition was produced by a concentration of 10 μg per cubic centimeter of dihydrostreptomycin. Cultures were again made, and the organisms were found to persist despite sulfonamide therapy, as was expected from the sensitivity tests.

Both children were then given 1 gm. of streptomycin orally per day in two equal doses every 12 hours. This was continued arbitrarily for five days. After a waiting period of three days, cultures were again made. Three daily cultures were negative for Salmonella. The father also took streptomycin orally under the direction of his physician. This family will be followed for six months to make certain that the carrier state has been abolished.

SUMMARY

A case of Salmonella montevideo infection in a 3-year-old girl following use of powdered egg yolk is reported. The child's father and infant brother were also found to be harboring the organism, which was shown to be sensitive to streptomycin. All three were treated and will be followed until the carrier state has been eliminated.

7217 Atlantic Ave., Ventnor City, N. J. (Dr. Southard).

Today's Family Doctor.—Pendulums inevitably swing too far and then come back. Today the swing is back to a proper regard for the family physician. We might say a proper regard for the new family physician. Who is this new family physician? He is a man or woman who has completed six years in university study and has spent an average of two years in hospital training, following graduation. He is well versed in modern methods of diagnosis and treatment. He knows his limitations in treating cases which may require specialist care. He takes time off each week for study in his neighborhood hospital and each year takes a refresher course in some aspect of his work. He is fully trained in the aspect of medicine which reveals nearly every disease—the ability to evaluate the patient's story about his illness, and the ability to do a thorough physical examination. Relatively few cases require diagnostic aids other than those in daily use in the family doctor's office; and relatively few cases require treatment other than that which the family doctor is able to give.—G. I. Sawyer, M.D., Every Family Needs a Doctor, *Health*, May-June, 1953.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

APPARATUS ACCEPTED

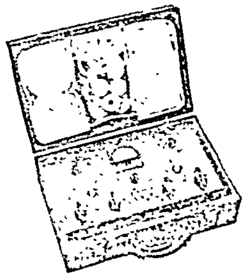
The following additional products have been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

Ralph E. De Forest, M.D., *Secretary*.

Multitone Muscle Stimulator, Model 3

Bilton Laboratories, Inc., 100 S. Broad St., Philadelphia 10.

The Multitone Muscle Stimulator, Model 3, is an apparatus for generating electric currents to stimulate innervated voluntary muscles as an aid in rehabilitation, to retard muscle atrophy, and to prevent adhesions and joint atrophy in patients who cannot exercise voluntarily. The apparatus weighs 11.3 kg. (25 lb.) and is portable. It requires a source of 60-cycle alternating current at 110 volts and draws 22 watts.

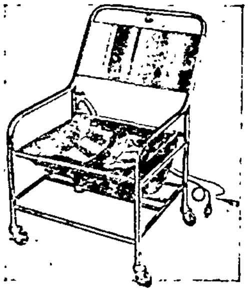

Multitone Muscle Stimulator, Model 3

It is equipped with eight circular electrodes so that more than one muscle can be exercised at a time. A selector switch set at "Push-Pull" energizes the right and left circuits alternately and thus makes it possible to elicit reciprocating contractions of antagonistic muscle pairs. Other controls permit adjustment of intensities and frequencies. The apparatus is accepted for use under medical supervision in stimulating normally innervated muscles.

Ille Mobile Sitz Bath, Model SB 100

Ille Electric Corporation, 50 Mill Road, Freeport, Long Island, N. Y.

The Ille Mobile Sitz Bath is a metal chair with the seat modified for application of heated water to the perineal region. It is intended for use in treatment or postoperative care in gynecologic, obstetric, and rectal cases. A heater maintains the temperature of the water during the interval between filling of the bath and immersion of the part to be treated. The heating unit operates on either direct or alternating current at 115 volts and draws 325 watts.


Ille Mobile Sitz Bath, Model SB 100

The chair frame is made of aluminum tubing; the water pan is of stainless steel. The unpacked article weighs 13.6 kg. (30 lb.) and measures 89 by 74 by 61 cm. (35 by 29 by 24 in.). Packed for shipment it measures 102 by 76 by 76 cm. (40 by 30 by 30 in.) and weighs 38.6 kg. (85 lb.). The apparatus has the approval of Underwriters' Laboratories, Inc.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
535 N. DEARBORN ST. . . . . CHICAGO 10, ILL.
Editor . . . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

TRANSFUSION OF PLATELETS

Uncontrolled hemorrhage due to thrombocytopenia may occur not only in essential thrombocytopenia but also in secondary thrombocytopenia such as may follow treatment of leukemia with myelotoxic agents or exposure to ionizing radiation. Such a hemorrhage responds poorly to transfusion of blood obtained from blood banks, presumably because the platelets are quite unstable under the conditions of collection and storage. Consequently, in recent years attention has been directed toward development of improved methods for the collection, storage, and administration of platelets. The current status of this work has been reviewed by Stefanini and Dameshek[1] together with a summary of their clinical experiences over a three year period.

Stefanini and Dameshek point out that in ordinary blood bank procedures agglutination and destruction of platelets is favored by their contact with such foreign surfaces as glass and metal and by the foaming that may result from the use of a vacuum. Indeed, it has been found that transfusions of blood obtained from blood banks do not elevate the platelet counts of thrombocytopenic recipients appreciably.

Several technical procedures are now available, however, that permit increased survival of platelets in vitro and in vivo. Thus a number of materials are available for coating metal surfaces or glassware with nonwettable endothelial-like surfaces[2] such as Arquad 2-C (dicocodimethyl-ammonium chloride) for coating needles, silicone lacquer, and Teflon fluid (a tetrafluoroethylene resin preparation) for coating metal surfaces, and silicone (methyl-chloro-silane) for coating glassware. Collection of blood without great loss of platelets is possible if such coated metal and glassware are used as well as tubes of nonwettable plastic or equipment made entirely of plastic. A new anticoagulant, Sequesterene disodium (disodium ethylenediamine tetra-acetate), minimizes the tendency of platelets to become sticky, to agglutinate rapidly, and to undergo morphological alterations in shed blood.[3] Other measures for more efficient separation and concentration of platelets include the use of surface acting agents such as polysorbate 80 (Tween-80) and Triton WR-1339 (an alkylaryl polyether alcohol) to reduce irreversible agglutination of platelets[4] and of ion-exchange resins such as Dowex-50 for the removal of platelets from blood. The resins trap the platelets as the blood that flows through is decalcified and made incoagulable. Platelets can then be recovered by elution.[5]

The clinical work described by Stefanini and Dameshek is based on a total of 216 platelet transfusions in 83 patients. Of these patients, 45 had idiopathic thrombocytopenia purpura, 33 had "amegakaryocytic" secondary thrombocytopenic purpura, and 5 had "hypersplenic" thrombocytopenic purpura. Platelet transfusions were given by various methods, including the transfusion of polycythemic blood or plasma directly with the use of multiple silicone-coated syringes, the transfusion of blood or plasma from polycythemic donors collected in and administered by plastic sets or silicone-coated glass bottles and plastic tubing, and the administration of concentrates of platelets isolated by multiple low speed centrifugation of whole blood collected by gravity in silicone-coated glassware with Sequestrene disodium used as the anticoagulant.

In comparing these methods it was found that when comparable numbers of platelets were transfused into patients with secondary thrombocytopenia, the platelets survived longest (four to five days) when platelet-rich polycythemic blood was transfused directly. The second longest survival period was with polycythemic blood collected in silicone-coated bottles or plastic bags. Platelets survived for much shorter times when they were separated and resuspended in their own plasma, while almost no platelets survived when they were resuspended in saline solution before being administered. These results agree well with results of in vitro studies, which demonstrated, among other things, that platelets that were resuspended in plasma still had the ability to normalize the clot retraction of platelet-poor plasma after they had been stored for 10 days at 51 C, while platelets that were resuspended in saline solution lost this ability after 10 to 24 hours.

Stefanini and his co-workers have found that administration of platelets to patients with either a quantitative or a qualitative platelet deficiency results in more complete retraction of the clot, reduction of the bleeding time, more complete utilization of prothombin during clotting, and improvement of the capillary fragility and of the bleeding manifestations. While better results were obtained with platelet-rich blood or plasma than with isolated platelets, in all cases the effects were manifested for some time after the injected platelets had disappeared from the circulation. This finding suggests that the hemostatic effect of platelets is due, in part at least, to relatively stable constituents of platelets liberated when these bodies integrate.

---

1. Stefanini, M., and Dameshek, W.: Collection, Preservation and Transfusion of Platelets with Special Reference to Factors Affecting "Survival Rate" and Clinical Effectiveness of Transfused Platelets, New England J. Med. **248**: 797-802, 1953.
2. Tullis, J. L., and Rochow, E. G.: Non-Wettable Surfaces, Blood **7**: 850-853, 1952.
3. Dillard, G. H. L.; Brecher, G., and Cronkite, E. P.: Separation, Concentration, and Transfusion of Platelets, Proc. Soc. Exper. Biol. & Med. **78**: 796-799, 1951.
4. Minor, A. H., and Burnett, L.: Method for Separating and Concentrating Platelets from Normal Human Blood, Blood **7**: 693-699, 1952.
5. Freeman, G.: Method for Obtaining Large Yields of Human Platelets as By-Product of Blood-Collection, Science **114**: 527-528, 1951.

The value of platelet transfusions is limited by the fact that the survival of platelets in vivo is considerably reduced by the pathological state of the recipient. Stefanini and his associates feel that this response is in some cases nonspecific, but in others a platelet-destructive mechanism appears to be the important factor. Survival of transfused platelets is greatly reduced in severe transfusion reactions and in severe, uncontrolled hemorrhage. Splenomegaly, irrespective of its etiology, may cause fast disappearance of platelets. Platelet-destructive mechanisms are present in idiopathic thrombocytopenic purpura and in thrombocytopenia due to drug sensitivity when the causative drug is still in the circulation. Furthermore, repeated transfusions of platelets or platelet products may give rise to decreased platelet survival owing to the appearance of platelet agglutinins. It is possible that this is due to the administration of mismatched thrombocytes, since preliminary evidence suggests there may be platelet groups in human beings.

The results thus far obtained with the use of platelet transfusions would seem to justify a continued search for better methods of platelet isolation and for the identification of the factor or factors in platelets responsible for their hemostatic effects. Such studies not only offer a promising therapeutic approach but may well throw further light on the pathogenetic mechanisms in certain thrombocytopenic states.

THE BIOSYNTHESIS OF CHOLESTEROL

The availability of isotopes for "labeling" suspected precursors of biologically important substances made possible the fundamental discovery that the simple, abundant 2-carbon compound, acetate, is used in the biosynthesis of cholesterol.[1] Atoms of radioactive carbon (C^{14}) derived from acetate administered to experimental animals were found to appear in the cholesterol subsequently isolated from the tissues. Recent work has further demonstrated that the synthesis of cholesterol from acetate proceeds by way of the cyclization of the hydrocarbon squalene.[2] The site and the regulation of the biosynthesis of cholesterol are also problems of great medical interest and fundamental importance. The liver appears to be the primary locus of cholesterol synthesis in the adult,[3] whereas other tissues, including the kidney, testes, adrenal cortex, ovaries, and small intestine, are active in the fetus.[4] The skin also contributes somewhat to cholesterol synthesis in the adult.

A number of factors have been shown to affect the rate of synthesis of cholesterol, particularly in the liver. One of the most interesting of these is cholesterol itself.[5] With liver slices to which C^{14}-acetate was added, the rate of hepatic synthesis of cholesterol was carefully followed in control, untreated dogs and in dogs previously fed relatively large amounts of cholesterol. A very low rate of synthesis was found in the cholesterol-fed group. This observation is perhaps not an unexpected one. The presence or accumulation of the end-product of most reactions, particularly enzymatic, inhibits any further reaction. As another example, the continued administration of a hormone is typically attended by a decreased production of the same hormone by the endocrine gland involved, even to the point of atrophy of the secretory tissue. In the case of cholesterol, this is perhaps a fortunate coincidence in the protection of the organism against an oversupply of cholesterol and in maintaining homeostasis with respect to this sterol. Furthermore, these observations may add to the now considerable amount of evidence indicating that an increased cholesterol intake is not an etiological factor in supposed aberrations of cholesterol metabolism, such as atherosclerosis.

Two other important factors affecting the biosynthesis of cholesterol are being studied currently. One of these is pantothenic acid.[6] In studies on rats, a group of California investigators observed that there is a decreased synthesis of cholesterol by the liver in pantothenic acid deficiency. This is a rather reasonable finding, since pantothenic acid is a constituent of coenzyme A, which is required for the metabolism of acetate, which, in turn, serves as a precursor of cholesterol as mentioned above.

A second vitamin currently indicated to be involved in the regulation of cholesterol formation, at least in the adrenal, is ascorbic acid.[7] The preliminary results show that the adrenal glands of the severely scorbutic guinea pig incorporate six times as much C^{14}-labeled acetate into cholesterol as do those of normal control animals under otherwise identical conditions.

The recent studies described above indicate that the biosynthesis of cholesterol is a delicately controlled mechanism that is not only adapted, on the one hand, to insure an adequate supply of this extremely important essential metabolite in the body but also regulated, on the other hand, to prevent an oversynthesis in potentially dangerous amounts.

PATHOGENESIS OF ESSENTIAL HYPERTENSION

The pathogenesis of essential hypertension, which accounts for 95% of the cases of hypertension seen clinically, is still unknown in spite of extensive clinical and laboratory studies during the past 20 years. However, these studies have indicated neurogenic, endocrine (anterior pituitary–adrenal cortex), and renal changes in pathophysiology that may have pathogenetic significance. Thus some patients with essential hypertension show evidence of increased vasomotor tone, others show mild disturbances in water and sodium chloride metabolisms, and some show increased plasma concentrations

---

1. Bloch, K., and Rittenberg, D.: On Utilization of Acetic Acid for Cholesterol Formation, J. Biol. Chem. **145**: 625, 1942.

2. Langdon, R. G., and Bloch, K.: The Utilization of Squalene in the Biosynthesis of Cholesterol, J. Biol. Chem. **200**: 135, 1935. Ibid. **202**: 77, 1953.

3. Srere, P. A.; Chaikoff, I. L.; Treitman, S. S., and Burstein, L. S.: Extrahepatic Synthesis of Cholesterol, J. Biol. Chem. **182**: 629, 1950.

4. Popják, G., and Beckmans, M. L.: Extrahepatic Lipid Synthesis, Biochem. J. **47**: 233, 1950. Srere and others.[3]

5. Gould, E. G., and others: Cholesterol Metabolism: Effect of Dietary Cholesterol on Synthesis of Cholesterol in Dog Tissue in Vitro, J. Biol. Chem. **201**: 519, 1953.

6. Guehring, R. R.; Hurley, L. S., and Morgan, A. F.: Cholesterol Metabolism in Pantothenic Acid Deficiency, J. Biol. Chem. **197**: 485, 1952.

7. Becker, R. R., and others: Ascorbic Acid Deficiency and Cholesterol Synthesis, letter to the editor, J. Am. Chem. Soc. **75**: 2020, 1953.

of vasoexcitatory material (VEM) and vasodepressor material (VDM), produced by the kidney and liver, respectively. Whether these changes connote several pathogenetically distinct types of hypertension or whether essential hypertension is a single clinical entity with varying degrees of alteration in different body functions remains to be determined.

Since the pathogenesis of essential hypertension is unknown, treatment is based on pathophysiology and empiricism. Moreover, information about the long-term effects of presently recognized methods of treatment (psychotherapy, sedatives, low salt diet, autonomic drugs, and sympathectomy) on the basic hypertensive vascular disease process is incomplete and largely limited to sympathectomy. That these types of therapy afford symptomatic relief in some patients has been amply demonstrated; that they prolong life in some is probable; but that they are capable of delaying the progress of the basic cardiovascular disease in most patients can only be conjectured at present. Since all these methods of treatment have an antihypertensive effect in certain patients and hypertension is known to accelerate the onset and accentuate the progress of atherosclerosis and arteriolosclerosis, long-term antihypertensive therapy should at least decrease the incidence and severity of arteriosclerosis in essential hypertension.

The reproduction of a disease in experimental animals has almost invariably led to better understanding of the disease and hence to better therapy. Accordingly, many attempts have been made to reproduce essential hypertension experimentally. Thus far, these efforts have resulted in important progress rather than complete success. Section of the carotid sinus and aortic depressor nerves is very efficient in producing hypertension due to increased vasomotor tone; however, this hypertension is characterized by tachycardia and absent buffer nerve function and, therefore, differs importantly from essential hypertension. Large doses of crude anterior pituitary extract or of its somatotropic hormone and large amounts of desoxycorticosterone acetate and sodium chloride produce hypertension in rats but not in dogs. This hypertension, however, resembles that of pituitary basophilism and adrenal cortical tumors, rather than essential hypertension. Partial constriction of the renal arteries in all species of animals studied produces hypertension [1] that in all important respects thus far studied resembles essential hypertension. Obviously it cannot be concluded that these similarities indicate even a partial common pathogenesis for the two conditions, but the similarities encourage study of the pathogenesis and treatment of experimental renal hypertension in the hope that the enigma of essential hypertension will be brought nearer to solution.

Although 20 years have passed since Goldblatt first produced experimental renal hypertension, its pathogenesis is still unsettled. The three principal hypotheses are alteration in the renin-angiotonin (hypertensin) mechanism, decreased secretion of a renal blood pressure regulating hormone, and increased formation of pressor amines by the kidney. Recently a research group at the University of Illinois College of Medicine offered good evidence that renin or a closely related renal protein is pathogenetic in experimental renal hypertension in dogs.[2] Experiments extending over more than a decade demonstrated that repeated injections of hog renin into dogs produced an antibody (antirenin) that neutralized the pressor effect of hog renin and also dog renin. Experimentally induced renal hypertension in dogs was successfully treated with hog renin and also prevented by prophylaxis with hog renin. The therapeutic and prophylactic effects were well correlated with the antirenin titer. Control tissue extracts were without antihypertensive effect. The same research group subsequently found that the passive transfer of high titer antiserum to dogs with chronic renal hypertension produced a significant antihypertensive effect that was also well correlated with the antirenin titer.[3] Even more important, perhaps, is the finding that similar renin-antirenin treatment of spontaneous hypertension in the dog (which may be the counterpart of essential hypertension in man) produced excellent antihypertensive effects.[4]

Unfortunately, antirenin to hog renin does not neutralize monkey or human renins; hence, semipurified hog renin was without antihypertensive effect in experimental renal hypertension in the monkey, even in the presence of good antirenin titers.[5] Negative results were also obtained with hog renin in essential hypertension, as was to be expected even if the pathogenesis of essential hypertension should ultimately prove to be primarily on a renal renin basis.[6] However, the finding that a passively produced antirenin titer is similarly effective in its antihypertensive action to a titer actively produced in chronic renal hypertensive dogs suggests a heretofore unavailable method for determining what proportion, if any, of patients with essential hypertension have hypertension on a renal renin basis. The University of Illinois group has shown that antirenin to human renin produced in the rabbit, dog, and goat neutralizes human renin. After preliminary studies in the monkey, they propose to study the effect of the passive transfer of purified antirenin to human renin in essential hypertension. Significant antihypertensive effects would suggest a pathogenetic role for the kidney and the renin mechanism. Should essential hypertension in an appreciable percentage of patients prove to be primarily on a renal renin basis, research groups that are not now interested in the problem might well be stimulated to alter the antigenicity of hog renin or other animal renins to overcome the species difference that presently precludes the possible successful use of these renins in the treatment of hypertension in human patients.

---

[1] Goldblatt, H.; Lynch, J.; Hanzal, R. F., and *Summerville, W. W.*: Studies on Experimental Hypertension: Production of Persistent Elevation of Systolic Blood Pressure by Means of Renal Ischemia, J. Exper. Med. **59**:347, 1934.

[2] Wakerlin, G. E., and others: Treatment and Prophylaxis of Experimental Renal Hypertension with "Renin," J. Lab. & *Clin. Med.* **41**: 708, 1953.

[3] Kuperman, I., and Wakerlin, G. E.: Treatment of Experimental Renal Hypertension in Dogs with *Antirenin, Fed. Proc.* **12**: 80, 1953.

[4] Katz, J.; *Skom*, J. H., and Wakerlin, G. E.: Treatment of Spontaneous Hypertension in Dogs with Semipurified Hog Renin, Program 26, Scientific Session, New York, American Heart Association, 1953, no. 92, p. 70.

[5] Wakerlin, G. E., and Frank, M. H.: Unpublished data.

[6] *Goldblatt*, H.; Haas, E., and Lanfrom, H.: Antirenin in Man and Animals, Trans. A. Am. Physicians **64**:122, 1951.

MEDICAL NEWS

CALIFORNIA

Dr. Guedel Honored.—At the Third Biennial Western Conference of Anesthesiologists, Dr. Ralph T. Knight, Minneapolis, president, American Society of Anesthesiologists, acting on behalf of the Cuban Society of Anesthesiology, presented to Dr. Arthur E. Guedel, emeritus associate clinical professor of surgery (anesthesiology) at the University of Southern California School of Medicine, Los Angeles, a scroll testifying his election to honorary membership in the Cuban society. Dr. Georgina A. Funtanellas, graduate of the University of Havana Faculty of Medicine and Pharmacy, and now head of the department of anesthesiology at the San Francisco Hospital, represented the Cuban society.

Course on Radioisotopes.—The University of California Extension offers a course in "Fundamental Principles of Radioactivity Including Clinical Use of Radioisotopes," directed particularly toward the clinical and experimental use of radioisotopes and designed to meet the requirements of the Atomic Energy Commission in respect to distribution of radioisotopes. On satisfactory completion of the course, students will be able to obtain radioisotopes directly from the Atomic Energy Commission. The 40 week course involves laboratory and lecture sessions on Wednesdays from 7 to 10 p. m., beginning Sept. 16, and clinical sessions on Wednesdays from 9 to 12 a. m. and 2 to 5 p. m., May 12 to June 30, 1954 (10 all-day sessions). Primary emphasis will be placed on laboratory work including experiments with radioisotopes as well as radioactivity detecting and counting techniques. Fee for the course is $700. The course is limited to 12 registrants, who must be graduates of approved medical schools. Application or requests for information should be made to Dr. Thomas H. Sternberg, Head of Postgraduate Instruction, Medical Extension, University of California, Los Angeles 24. Study sessions will be held at the university's School of Medicine, 10975 Wilshire Blvd., Los Angeles 24, with clinical sessions at Wadsworth General Hospital, Veterans Administration Center, Los Angeles, and Harbor General Hospital in Torrance.

GEORGIA

Narcotic Violation.—Dr. Marvin A. Acree, Calhoun, pleaded guilty in the U. S. District Court at Rome, June 3, to a violation of the federal narcotic law and on the same date was sentenced to three years' probation and was fined $500.

Society News.—The Georgia Urological Society has elected the following officers: Dr. James L. Pittman, Atlanta, president; Dr. J. Robert Rinker, Augusta, president-elect; and Dr. J. Zeb McDaniel, Albany, secretary-treasurer.——The Georgia Society of Ophthalmology and Otolaryngology has elected Dr. W. Eugene Matthews, Augusta, president; Dr. J. Kirk Train, Savannah, vice-president; and Dr. Alton V. Hallum, Atlanta, secretary-treasurer. The society's spring meeting in 1954 will be held March 5-6 at the General Oglethorpe Hotel, Savannah.

ILLINOIS

School for the Blind Teaches by Mail.—The Hadley Correspondence School for the Blind, Winnetka, will attempt to raise $115,000 in 1953 in order to erect a building to house its institution, which has grown from one pupil in 1921 to its present 1,100 in 48 states and 27 foreign countries. The school, founded by a blind Chicago high school teacher, Mr. William A. Hadley, offers some 70 courses, in addition to the fundamental lessons of Braille. No tuition is charged, the school being maintained solely through the support of interested persons.

Hospital News.—According to a recent report from the Bureau of Hospitals, State Department of Public Health, during the past decade the birth rate in Illinois hospitals has increased markedly, 197,750 babies having been born last year in Illinois hospitals licensed for maternity service, compared with 136,648 in 1943. About 98 of every 100 births in Illinois last year occurred in hospitals. As for the reduction in maternal mortality in hospitals, 77 mothers died last year from complications associated with childbirth, compared with 286 such deaths in 1943. The maternal mortality rate in hospitals declined from 21.4 deaths per 10,000 live births in 1943 to 4 in 1952. Infant mortality under one month of age fell from about 22 per 1,000 live births in 1943 to 17.7 last year.

Chicago

Cancer Gift.—A check for $1,000 recently presented to Dr. John A. Rogers, executive director of the Illinois Division, American Cancer Society, represented funds raised by the Philip Solomon Memorial Club.

Society News.—At the annual meeting the Chicago Gynecological Society elected the following officers: president, Dr. Henry Buxbaum; president-elect, Dr. Jacob P. Greenhill; vice-president, Dr. John R. Wolff; treasurer, Dr. Harry Boysen; secretary, Dr. Edwin J. DeCosta; pathologist, Dr. Arthur H. Klawans; and editor, Dr. Magnus P. Urnes.——The Chicago Society of Allergy has elected Dr. Abraham L. Aaronson, Chicago, president, Dr. Max Samter, Oak Park, Ill., president-elect, and Dr. Simon S. Rubin, Gary, Ind., secretary-treasurer.

Personal.—At a ceremony in the nurses' residence of Michael Reese Hospital, a plaque was awarded to Dr. Isaac A. Abt "in honor of his outstanding contributions to the science of healing sick children." Dr. Abt is one of the founders of the Sarah Morris Hospital for Children at Michael Reese.——Friends and fellow members of the Rush Medical alumni of the University of Chicago recently honored Dr. Ottilie Zelezny Baumrucker of the Women's and Children's Hospital for her 50 years in the practice of medicine. She was feted at a dinner in the Shoreland Hotel.——Dr. Meyer R. Lichtenstein has been named medical director of the City of Chicago Municipal Tuberculosis Sanitarium succeeding Dr. Otto L. Bettag, who resigned in January to become director of the Illinois Department of Public Welfare. Dr. Lichtenstein has been serving as acting medical director in addition to his regular duties as chief of the medical department.——Dr. Abraham Levinson, professor of pediatrics, Northwestern University Medical School, recently delivered the first annual Dr. B. Bernard Weinstein History of Medicine Lecture in New Orleans. The lecture was sponsored by the Tulane History of Medicine Society in honor of Dr. Weinstein, who is associate professor of clinical gynecology at Tulane University of Louisiana School of Medicine and faculty adviser to the society.——Dr. Earl H. Blair, deputy director for health services of the Chicago Civil Defense Corps, has been named as one of 65 volunteer civil defense workers in 34 states to receive the 1953 Freedoms Foundation civil defense awards for "rendering paramount service toward maintaining the American way of life."

KANSAS

Arkansas City Fluoridates Water Supply.—On June 11, Arkansas City became the 15th Kansas city now fluoridating public water supplies. Fluoridation of the municipal water supply in Arkansas City was endorsed by the Arkansas City and Cowley County dental societies. Other towns in Kansas now fluoridating the public water supply are Ottawa, Horton, Junction City, Garnett, Seneca, Fort Scott, Minneapolis, Hays, El Dorado, Coffeyville, Iola, Colony, Lawrence, and Paola.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

University News.—Dr. Vernon E. Wilson, who recently completed his internship in the University of Illinois Research and Educational Hospitals, Chicago, has been appointed assistant dean in charge of student affairs at Kansas University Medical Center, Kansas City. Dr. Wilson, who will also be assistant professor of pharmacology, will assume his new duties Sept. 1.

Personal.—Dr. Lester A. Latimer, who has practiced medicine in Alexander for 43 years, was recently honored by his community at a farewell program in the high school auditorium. The plaque presented to Dr. Latimer in appreciation of his service contains an engraved bronze inscription to Dr. and Mrs. Latimer and a picture of the home that they occupied in Alexander for 25 years and which they are leaving for a new home in Kansas City, where Dr. Latimer will spend his retirement.——Dr. Mowry S. Thatcher of Turon was recently honored with a dinner and program at the Turon High School, given by the community that he has served for over 50 years.——Dr. Samuel T. Coughlin has been elected president of the medical staff of St. Joseph Memorial Hospital, Larned.——Dr. John M. Anderson, superintendent of the Topeka State Hospital, has resigned and will enter private practice in Atlanta.——Dr. Philip A. Bearg has been appointed pediatrician on the staff of the division of maternal and child health, Kansas State Board of Health, Topeka. He previously served as an epidemiologist in the New Haven (Conn.) City Health Department, then was commissioned as passed assistant surgeon in the Public Health Service Reserve Corps, and assigned to the California State Department of Health from 1943 to 1945, when he became health officer of San Luis Obispo, Calif.——Dr. Karl A. Menninger, Topeka, director of education for the Menninger Foundation, was recently honored by the Topeka Chapter of the National Conference of Christians and Jews as the Topekan who had contributed notably to the cause of world brotherhood. The annual citation was presented at the Brotherhood Banquet.

MARYLAND

Dr. Reed Named Hopkins President.—Lowell J. Reed, Ph.D., whose retirement as vice-president of the Johns Hopkins University and Hospital was recently announced (*J. A. M. A.* **152:**1347 [Aug. 1] 1953), has reconsidered his decision to retire and has accepted appointment as president of the university to succeed Detlev W. Bronk, Ph.D., who has been appointed president and chief executive officer of the Rockefeller Institute for Medical Research in New York. In announcing Dr. Reed's appointment, Mr. Carlyle Barton, president of the board of trustees, said: "Dr. Reed's part in developing the present programs of the university, his long association with the faculties and his achievements as a teacher, scientist, and administrator assure us that during his incumbency the university will make steady progress toward the educational and research objectives that have guided it since its founding. These have taken on a new timeliness as interpreted by Dr. Bronk and we are determined to accomplish their substantial fulfillment. . . . In view of Dr. Reed's long and fruitful service to the university, the trustees are particularly grateful for his willingness to assume these further responsibilities at a time when he might rightfully expect to be free of heavy administrative duties."

MASSACHUSETTS

Crippled Children's Clinics.—Consultation clinics for crippled children have been scheduled for Greenfield, Aug. 6, Dr. Charles L. Sturdevant, Boston; Lowell, Aug. 14, Dr. Albert H. Brewster, Boston; and Fall River, Aug. 24, Dr. David S. Grice, Boston.

Alvarenga Prize to Dr. Moore.—On July 14 the College of Physicians of Philadelphia awarded the Alvarenga prize for 1953 to Dr. Francis D. Moore, surgeon-in-chief, Peter Bent Brigham Hospital, Boston, and Mosely Professor of Surgery, Harvard Medical School, Boston, for his outstanding contributions to the knowledge of the changes in body metabolism following surgery. The Alvarenga prize was established by the will of DaCosta Alvarenga of Lisbon, Portugal, an associate fellow of the College of Physicians of Philadelphia, to be awarded annually by the college on the anniversary of his death, July 14, 1883.

MICHIGAN

Fluoride Treatments for Children.—In a special program carried on by the public health dentistry section of the Michigan Department of Health in cooperation with local dentists and health, school, and civic groups, between 16,000 and 17,000 Michigan children, aged 3 to 13 years, are receiving fluoride treatments this summer to prevent tooth decay. The treatments will be given in 116 locations in 27 counties to rural children and to those in areas that do not have fluoride programs during the school year.

Medical Director Appointed.—Dr. James N. Dewane, Menominee, has been named medical director of Libby, McNeill & Libby, food canners, Chicago, to succeed Dr. Roscoe C. Eaton, who retired under the company's pension plan after 38 years' service. Dr. Dewane was previously affiliated with St. Agnes Hospital, Fond du Lac, Wis., and Newton D. Baker General Hospital, Martinsburg, W. Va. He spent two years in military service, attained the rank of captain, and was regimental surgeon of the 11th Constabulary Regiment.

Society News.—The Academy of Surgery of Detroit has elected Dr. Conrad R. Lam, president, Dr. Earl G. Merritt, president-elect, and Dr. Howard T. Howlett, secretary-treasurer. Dr. Roland P. Reynolds, retiring president, was chosen to fill a four year term as councilor.——At the annual meeting of the Detroit Dermatological Society, May 13, Dr. Henry A. Brunsting, Toledo, Ohio, was elected president, Dr. Charles J. Courville, Detroit, president-elect, Dr. Coleman Mopper, Detroit, secretary-treasurer, and Dr. Roy H. Holmes, Muskegon, recorder.

University News.—The University of Michigan Medical School, Ann Arbor, has announced the promotion to full professorship of Drs. A. James French (pathology) and John F. Holt (radiology). Dr. James W. Rae Jr., who has been acting chairman of the medical school's department of physical medicine and rehabilitation, has been named chairman and promoted to associate professor. Dr. Fred M. Davenport has been promoted to associate professorship in the department of internal medicine, school of public health. Also promoted to the rank of associate professor were Drs. Ivan F. Duff and Muriel C. Meyers (internal medicine); Herbert E. Sloan Jr. (surgery); Arthur L. Drew Jr. and Martha R. Westerberg (neurology); Lauren A. Woods (pharmacology); and Robert J. M. Horton (epidemiology). These physicians were promoted to the rank of assistant professor: Drs. Murray R. Abell (pathology), Samuel Behrman (obstetrics and gynecology), Melvin M. Figley (radiology), Everett R. Harrell Jr. (dermatology and syphilology), Willard J. Hendrickson (psychiatry), Robert C. Hendrix (pathology), Robert G. Lovell (internal medicine), and Aaron M. Stern (pediatrics and communicable diseases).

MISSISSIPPI

State Medical Election.—At the annual meeting in Biloxi the Mississippi State Medical Association elected Dr. Monterville Q. Ewing, Amory, president, Dr. Cummings H. McCall, Gulfport, president-elect, Drs. William T. Wilkins, Clarksdale, J. Harvey Johnston Jr., Jackson, and Richard H. Clark, Hattiesburg, vice-presidents, Dr. David S. Pankratz, University, historian, and Dr. Louie T. Carl, Jackson, associate editor.

MISSOURI

Hospital News.—At its annual meeting in St. Louis the St. Mary's Group of Hospitals Alumni elected the following St. Louis physicians as officers: Dr. J. Grey Jones, president; Dr. Carl J. Dreyer, vice-president; Dr. Malcolm B. Bawell, secretary; and Dr. Louis Keller, treasurer.

Personal.—Dr. Norman Tobias, St. Louis, recently addressed a joint meeting of the Buchanan County Medical and Dental Societies at St. Joseph on "Common Diseases of the Mouth." ——Dr. Robert Dean Woolsey, instructor in surgery, St. Louis University School of Medicine, conducted clinics in neurosurgery at the University of Turkey in Istanbul in June. His wife, Dr. Doris L. Woolsey, associate in clinical otolaryngology at Washington University School of Medicine, conducted clinics in otolaryngology at the university.——Dr. John R. Beem, St. Louis, has been appointed staff physician in the medical division of Sharp & Dohme, Philadelphia. Dr. Beem, who left the Army with the rank of captain in 1948, has since been affiliated with the Washington University School of Medicine, St. Louis.

Course in Medicine and Surgery.—The Greene County Medical Society will sponsor a postgraduate course in medicine and surgery, which will be presented by the department of postgraduate medical education of the University of Kansas School of Medicine. The course is planned for afternoon and evening sessions (2½ hours each) the last Wednesday of each month for a six month period beginning in October. It is open to anyone holding the degree of doctor of medicine. A registration fee of $25 is required for the course or $5 for each program (afternoon and evening). At the close of the course a certificate will be issued showing credit for the total hours attended. The tentative schedule of the programs, which will be offered in Springfield, includes a cardiovascular disease seminar and sessions on child psychiatry, hematology, ophthalmology, otolaryngology, chest diseases, medical emergencies, neurosurgery, and plastic surgery.

NEW JERSEY

Newark Honors Dr. Martland.—In recognition of his more than 40 years of outstanding professional service, the Newark City Commission will name the proposed new city hospital in honor of Dr. Harrison S. Martland, Newark, chief medical examiner of Essex County. Dr. Martland, who is professor of forensic medicine at New York University College of Medicine, became pathologist at Newark City Hospital in 1909. He is the holder of the Dr. Edward J. Ill Medal awarded by the Northern New Jersey Academy of Medicine.

NEW YORK

Name Director of Berg Institute.—L. Royal Christensen, Ph.D., assistant professor of microbiology at the New York University College of Medicine, has been appointed director of the new Henry W. and Albert A. Berg Institute for Experimental Physiology, Surgery and Pathology. He has been on the faculty of the college since 1941. The Berg institute was made possible through gifts from the late Dr. Albert A. Berg, who "contemplated a workshop where physiology and pathology would contribute nutriment for the growth of surgery" and whose will provided $500,000 for construction and a fund of well over one million dollars for maintenance of the institute named for him and his brother, the late Dr. Henry W. Berg.

Dr. Larimore Named Deputy Health Commissioner.—Dr. Herman E. Hilleboe, Albany, state health commissioner, has announced the appointment of Dr. Granville W. Larimore, Albany, as deputy health commissioner to succeed Dr. Hollis S. Ingraham, Albany, who was recently appointed first deputy commissioner. Dr. Larimore, who has been director of the Office of Public Health Education, New York State Department of Health, since 1947, is assistant professor of public health and preventive medicine at Albany Medical College and visiting lecturer at Columbia University School of Public Health. He was formerly educational director of the American Cancer Society. During World War II he served in the U. S. Army Medical Corps in which, as chief of the Health Education Unit in the Army Surgeon General's office, he was responsible for the development and administration of the health education program of the Army. He was awarded both the Army Commendation Medal and the Army Legion of Merit. Dr. Larimore was previously affiliated with the Municipal Contagious Disease Hospital in Chicago and served as assistant section chief in the contagious hospitals section of the Chicago Health Department. Since 1947 he has been consultant in public health education to the U. S. Army Surgeon General.

New York City

Dr. Hinsey to Direct Medical Center.—Joseph C. Hinsey, Ph.D., dean of Cornell University Medical College, has been appointed director of the New York Hospital-Cornell Medical Center to succeed Dr. Stanhope Bayne-Jones, for the past six years president of the joint administrative board of the center, who retired June 30 to become civilian technical director of research of the Army Medical Research and Development Program. Dr. Hinsey, who was also professor of anatomy at Cornell, has been affiliated with Washington University School of Medicine, St. Louis, Northwestern University Medical School, Chicago, and Stanford University School of Medicine, San Francisco. During World War II he served as consultant to the Committee on Neurosurgery of the National Research Council and directed research dealing with nerve injuries and with crash injuries in military airplane accidents. Dr. Hinsey, a past president of the Association of American Medical Colleges, has been chairman of its executive council since 1947. He is a trustee of the Sloan-Kettering Institute and the China Medical Board and a member of the Board of Managers of the Memorial Hospital. Since 1942 he has been a faculty representative on the board of trustees of Cornell University and is associate dean of the Graduate School. Dr. Hinsey served on the Committee on the Survey of Medical Education, which was jointly sponsored by the American Medical Association and the Association of American Medical Colleges in 1948-1953, and as a commissioner on the President's Commission on the Health Needs of the Nation in 1952. He is presently national president of Nu Sigma Nu medical fraternity.

Rockefeller Institute Elects New Officers.—At a special meeting of the board of trustees of the Rockefeller Institute for Medical Research, Detlev W. Bronk, Ph.D., president of Johns Hopkins University, Baltimore, and long a member of the board of scientific directors of the institute, was elected president and, in accordance with the newly revised bylaws, chief executive officer. Dr. Thomas M. Rivers, who was elected a vice-president and director, will assume the executive responsibility for an interim period while Dr. Bronk continues as president of Johns Hopkins. Dr. Rivers, who becomes the third director of the institute since its founding in 1901 under the directorship of Dr. Simon Flexner, succeeds Dr. Herbert S. Gasser (*J. A. M. A.* **152:**1154 [July 18] 1953). Mr. David Rockefeller, Ph.D., formerly president of the institute, was elected to the newly created post of chairman of the combined board, which resulted from a merger of the board of trustees and the board of scientific directors, and Dr. George H. Whipple, Rochester, N. Y., formerly vice-president, was elected vice-chairman of the board. The position of president of the board of scientific directors has been discontinued. Dr. Bronk, who was for 19 years director of the Eldridge Reeves Johnson Foundation for Medical Physics at the University of Pennsylvania, Philadelphia, served as coordinator of research during World War II for the air surgeon of the Army Air Forces and since then has been chairman of the National Research Council and president of the National Academy of Sciences. Dr. Rivers served on three commissions to study acute respiratory diseases in World War I and during World War II was on active duty in the medical corps of the U. S. Naval Reserve, being promoted to commodore in October, 1945. He was in charge of a naval research unit at the Rockefeller Institute Hospital and was the officer in command of Naval Medical Research Unit No. 2, which was stationed on Guam.

OHIO

Society News.—At the annual meeting of the board of directors of the Academy of Medicine of Cleveland, Dr. John H. Budd was elected president and Dr. George L. Sackett, vice-president. Dr. George R. Krause was reappointed secretary-treasurer.

Esophageal Speech Institute.—An institute on teaching and improving esophageal speech will be held Aug. 10 at the Cleveland Hearing and Speech Center, 11206 Euclid Ave., under the sponsorship of the American Cancer Society, National Cancer Institute of Institutes of Health, Office of Vocational Rehabilitation, Cleveland Otolaryngological Society, Cleveland Academy of Medicine, and the Western Reserve University School of Medicine. Surgeons, speech pathologists, and lay persons are invited to attend the sessions. Nonspeaking persons who have had a laryngectomy may attend without charge and may be sent by surgeons, cancer societies, societies for crippled persons, and rehabilitation services.

OREGON

University News.—The Tektronic Foundation of Portland has contributed $26,800 to support the surgery department's pain project and other research programs at the University of Oregon, Portland; $16,000 will be used for the two year salary of a neurophysiologist to work under the direction of Dr. William K. Livingston, head of the surgery department, and $10,800 to support graduate assistants for the next three years who will participate in research headed by John M. Brookhart, Ph.D., head of the physiology department.——Dr. Paul G. Hafner, director of the crippled children's program at the University of Oregon Medical School, Portland, since September, 1946, has resigned to devote full time to the private practice of orthopedic surgery in Vancouver, Wash., where he will be associated with Dr. Joseph H. Gill. Dr. Richard L. Sleeter, Medford, has been named to replace Dr. Hafner, with the rank of assistant professor of pediatrics. Other faculty appointments include Dr. Robert E. Buckmaster, clinical instructor in orthopedic surgery; Dr. Robert E. Rinehart, Wheeler, visiting clinical instructor in medicine; and Dr. Nathaniel D. Wilson, clinical instructor in surgery.——A Fulbright research scholarship to travel and study for six months in Italy has been awarded Dr. Robert S. Dow, associate clinical professor of medicine, University of Oregon Medical School, Portland. He will continue his work on neurophysiological research at the University of Pisa.

SOUTH DAKOTA

Fifty Year Club.—Fifty Year Club pins were recently awarded to Drs. John L. Chassell, Belle Fourche, Arthur S. Jackson, Rapid City, and Theodore F. Riggs, Pierre.

State Medical Election.—At the annual meeting in Rapid City the South Dakota State Medical Association elected Dr. Roland G. Mayer, Aberdeen, president; Dr. Arthur W. Spiry, Mobridge, president-elect; Dr. F. Daniels Gillis, Mitchell, vice-president; and Dr. Geoffrey Cottam, Sioux Falls, secretary-treasurer.

Personal.—Dr. Rezin Reagan, Sioux Falls, has retired after 40 years of practice. His four children, however, continue in medical fields: Dr. Paul C. Reagan will carry on his father's practice; Dr. James L. Reagan is in his first year of internship at Western Pennsylvania Hospital, Pittsburgh; Charles Reagan is an executive director with the U. S. Public Health Service in Spokane, Wash.; and the daughter, Genevieve, is an anesthetist at Sioux Valley Hospital, Sioux Falls. Dr. Reagan has been medical director for the National Reserve Life Insurance Company of Sioux Falls and Topeka, Kan., for 30 years.

TENNESSEE

Society News.—The Tennessee Academy of Preventive Medicine and Public Health, which held its first annual meeting May 20 in Nashville, announces that annual sessions hereafter will be held in conjunction with the annual meeting of the Tennessee State Medical Association. Membership in the academy is limited to diplomates of the American Board of Preventive Medicine resident in Tennessee. Officers of the academy are: Dr. Robert H. Hutcheson, Nashville, president; Dr. Monroe F. Brown, Nashville, vice-president; Dr. John J. Lentz, Nashville, president-elect; and Dr. Paul M. Golley, Chattanooga, secretary-treasurer.

WEST VIRGINIA

Cardiac Problems in Industry.—The Golden Clinic-Memorial General Hospital Association at Elkins will hold a symposium Sept. 7-8, on "The Heart in Industry." The medical panel will be comprised of the following physicians: Dr. W. Frederick Richmond, Beckley, president, West Virginia Heart Association; Dr. Robert P. Glover, president, American College of Cardiology, and clinical professor of thoracic surgery, Hahnemann Medical College and Hospital of Philadelphia; Dr. Donald S. Smith, consulting cardiologist, Fisher Body Division, Pontiac, Mich.; Dr. Edward M. Kline, Cleveland, medical consultant, General Electric Company and member of the Committee on the Cardiac in Industry of the AHA; and Dr. Leonard J. Goldwater, chairman, American Heart Association's Committee on the Cardiac in Industry and professor of occupational medicine, Columbia University School of Public Health, New York. Major labor groups and personnel divisions of industry have been invited to participate. The symposium is open to the medical profession and those directly interested in the rehabilitation problem. Further information may be obtained from Dr. Harold L. Jellinek, Golden Clinic, Elkins.

WISCONSIN

Course in Obstetrics.—The University of Wisconsin Medical School, Madison, will hold a postgraduate course in obstetrics, Sept. 1-3 in the graduate lecture room (426 State of Wisconsin General Hospital). This course, conducted by Dr. John W. Harris, professor of obstetrics and gynecology, will have as guest faculty member Dr. Curtis J. Lund, professor and chairman of the department of obstetrics and gynecology, Rochester (N. Y.) University School of Medicine. Advance registration (limited to 40 registrants) is required; fee, $20. Application for registration should be addressed to Dr. Robert C. Parkin, Coordinator of Graduate Medical Education, University of Wisconsin Medical School, 418 N. Randall Ave., Madison 6.

GENERAL

Vitamin Foundation Grants.—Fourteen new grants to 12 universities and 2 hospitals, for research on vitamins and nutrition, amounting to $69,710, have been announced by Dr. Robert S. Goodhart, scientific director of the National Vitamin Foundation, Inc., New York. These grants bring the total appropriated for research by the foundation since its incorporation in February, 1946, to $704,890.50. The foundation has appropriated more than $135,000 in additional funds for educational and public health purposes.

WHO Publishes Epidemic-Warning Cable Code.—The World Health Organization has announced in Geneva the publication of the first cable code to be used on a world-wide scale for transmitting information on epidemics and quarantine measures. The code will be used, beginning Dec. 1, in WHO's epidemic-intelligence service through which the agency is notified of outbreaks of certain diseases and then broadcasts the information to health authorities. Use of CODEPID, the WHO epidemiological cable code, is said to be restricted to national health authorities and WHO offices.

National Medical Fellowships.—Dr. Nathaniel O. Calloway, Chicago, vice-president of National Medical Fellowships, Inc., and Dr. Franklin C. McLean, Chicago, secretary-treasurer, announce the awarding of $74,075 to 46 Negro physicians and scholars in the medical and related fields for the year 1953-1954. National Medical Fellowships, Inc., formerly Provident Medical Associates, which was organized at the end of World War II, has awarded a total of $337,958 in grants to 146 persons for "improvement of Negro medical practice through the advancement of education and research."

Chronic Illness Planning.—The Commission on Chronic Illness has issued a 48 page mimeographed publication entitled "Welfare Council Activities in Chronic Illness Planning." The report, a summary of information that the commission obtained several years ago from a questionnaire to 124 community welfare councils, describes the efforts of community welfare councils in 70 cities and towns to make plans for meeting the needs created by chronic illness in their communities and gives a detailed discussion of the various methods used for local studies of prevalence and adequacy of facilities. A limited number of copies are available and may be obtained, free of charge, from the commission offices at 615 N. Wolfe St., Baltimore 5.

Theobald Smith Award.—The Theobald Smith Award of $1,000 and a bronze medal, sponsored by Eli Lilly and Company of Indianapolis under the auspices of the American Association for the Advancement of Science, will be given for the ninth time at the Boston meeting in December. The prize is given for "demonstrated research in the field of the medical sciences, taking into consideration independence of thought and originality." Nominations should be sent to Dr. Allan D. Bass, Department of Pharmacology, Vanderbilt University School of Medicine, Nashville, Tenn., before Sept. 15. They should be in triplicate and accompanied by full information concerning the nominee's personality, training, and research work. United States citizens under 35 years of age on Jan. 1, 1953, are eligible.

New Trudeau Societies.—According to the National Tuberculosis Association, three new state Trudeau societies were organized during the fiscal year 1952-1953, bringing to 28 the number of states having medical sections in their state tuberculosis associations. The new societies and their officers are: Nebraska Trudeau Society—Dr. William E. Nutzman, Kearney, president; Dr. Herbert B. Kennedy, Omaha, vice-president; Dr. Stanley E. Potter, Omaha, secretary-treasurer. Oklahoma Trudeau Society—Dr. Richard M. Burke, Oklahoma City, president; Dr. Robert M. Shepard, Tulsa, vice-president; Dr. Mark D. Holcomb, Enid, secretary-treasurer. West Virginia Trudeau Society—Dr. William L. Cooke, Charleston, president; Dr. Hugh S. Edwards, Beckley, secretary-treasurer.

Association of University Anesthetists.—Announcement has been made of the formation of the Association of University Anesthetists. The organization committee included physician anesthetists from the following universities and colleges: Columbia, Harvard, Minnesota, Pennsylvania, Tufts, Vanderbilt, and Wisconsin. Additional anesthetists have been elected from the following medical schools: Albany, Boston, Cornell, Duke, Georgia, Johns Hopkins, New York, New York State, Oregon, Rochester, Texas, Tulane, Washington, Wayne, and Yale. The purpose of the new group is to advance the art and science of anesthesia by encouraging original investigations, by developing methods of teaching, and by such free and informal interchange of ideas as a limited membership and common aims make possible.

Fellowships for Psychiatrists.—The National Foundation for Infantile Paralysis has a number of fellowships available to psychiatrists interested in emotional problems of the physically disabled. Eligibility requirements include two years of graduate training in psychiatry. Financial benefits are based on individual needs. Appointments will be made for one year, subject to renewal. The programs of the fellows should be undertaken in a center concerned with rehabilitation of the physically disabled that has affiliations with an approved department of psychiatry and affords opportunity for work with poliomyelitis patients with respiratory difficulties. The department of psychiatry is to be responsible for supervision and training of the fellows. Information may be obtained from the Division of Professional Education, National Foundation for Infantile Paralysis, 120 Broadway, New York 5.

Jane Coffin Childs Memorial Fund.—The Jane Coffin Childs Memorial Fund for Medical Research has announced that between Oct. 25, 1952, and May 15, 1953, it appropriated $238,480 for support of cancer research projects and fellowships. Of the 19 grants, the largest were: (1) to Dr. Francisco Duran-Reynals, lecturer, department of microbiology, Yale University School of Medicine, New Haven, Conn., $49,500 for the study of the part played by viruses in the genesis of cancer; (2) to Dr. Harris Busch, assistant professor of physiological chemistry, Yale University School of Medicine, New Haven, Conn., $25,950 for investigations on the metabolism of tumors in vivo; (3) to Dr. William W. Winternitz, instructor, and Dr. Cyril N. H. Long, professor, department of physiology, Yale University School of Medicine, $24,000 for investigations on the effect of transplantable tumors on the metabolism of the host (albino rats); and (4) to Dr. Baldwin H. Lucke, professor of pathology, University of Pennsylvania Medical School, Philadelphia, $23,100 for investigations on enzyme patterns in relation to the development and growth of neoplasms and the mechanism of metastasis.

Van Meter Prize Award.—The American Goiter Association offers the Van Meter prize award of $300 and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the association in Boston, April 29 to May 1, 1954, if essays of sufficient merit are presented in competition. A place will be reserved on the program for the presentation of the prize award essay by the author, and the essay will be published in the annual proceedings of the association. Essays may cover either clinical or research investigations, should not exceed 3,000 words, and must be presented in English. A typewritten, double-spaced copy in duplicate should be sent to the Corresponding Secretary, Dr. John C. McClintock, 149½ Washington Ave., Albany 10, N. Y., not later than Jan. 15, 1954.

Cardiac Research Applications.—Dr. Irving S. Wright, New York, chairman of the scientific council, American Heart Association, announces that applications are now being accepted for research awards to be made during the coming year under the joint auspices of the association and its affiliates throughout the country. Applications for research fellowships and established investigatorships should be filed by Sept. 15 and applications for research grants-in-aid no later than Dec. 1. Information and forms may be obtained from the Medical Director, American Heart Association, 44 E. 23rd St., New York 10. The research awards will be available for studies to be conducted during the year beginning July 1, 1954. Established investigatorships ($6,000 to $9,000), which may be extended annually for a five year period, are available to scientists of proven ability who are engaged in a research career. Research fellowships ($3,500 to $5,500), awarded for a one year period, are open to persons interested in research and in an academic career. Grants-in-aid, awarded in varying amounts usually not exceeding $10,000, are made on the basis of specific acceptable projects to experienced investigators working in nonprofit institutions, medical schools, hospitals, and laboratories, who have demonstrated their productiveness or who otherwise give promise of accumulating useful new information.

Lasker Awards in Planned Parenthood.—The annual Albert and Mary Lasker Foundation awards in planned parenthood were recently bestowed on the following three persons. 1. Dr. Herbert Thoms, chairman of the department of obstetrics and gynecology, Yale University School of Medicine, New Haven, Conn., received the award "in recognition of his contribution to marital health and happiness in the related fields of obstetrics, marriage counseling, and treatment for infertility." Dr. Thoms, who pioneered in research and development of methods of natural childbirth and rooming-in for mother and child, founded the first infertility clinic in Connecticut and was a prime mover in organizing the first marriage counseling clinic (at Yale) under medical school auspices. 2. Dr. John William Norton, Raleigh, N. C., state health officer of North Carolina, was given an award "for his far-sighted and energetic leadership in making effective an integrated birth control program in the public health services of North Carolina." Dr. Norton is said to have been a leader in the movement establishing in 1937 the first state-supported birth control clinics in the United States and later guiding the integration of planned parenthood into the program of local health department service in the state's 100 counties. 3. Mrs. Philip W. Pillsbury, immediate past president of the Planned Parenthood Federation, Inc., and now its first vice-president and Executive Committee chairman, received the award "for her unique contribution to the well-being of American family life in our generation."

Society News.—At the annual meeting in New York the Medical Society's Executives Conference elected Mr. Ralph W. Neill, Seattle, executive secretary of the Washington State Medical Society, president; Mr. Charles Lively, Charleston, W. Va., executive secretary of the West Virginia State Medical Association, president-elect; and Mr. William H. Bartleson, Kansas City, Mo., executive secretary of the Jackson County (Mo.) Medical Society, secretary-treasurer.——The American Congress of Physical Medicine and Rehabilitation has appointed a committee for the coordination and integration of physical medicine and rehabilitation in geriatrics, with Michael M. Dacso, New York, as chairman, and Nila G. Kirkpatrick Covalt, Rocky Hill, Conn., Harold Dinken, Denver, Karl Harpuder, New York, and G. Morris Piersol, Philadelphia, as members.——At the annual meeting in Hot Springs, Va., the American Orthopaedic Association elected Dr. Alfred R. Shands Jr., Wilmington, Del., president; Dr. Leo S. Lucas, Portland, Ore., vice-president; Dr. J. Warren White, Honolulu, Hawaii, president-elect; Dr. George O. Eaton, Baltimore, secretary; and Dr. H. Page Mauck, Richmond, Va., treasurer. ——At its annual meeting at the Sheraton-Mount Royal Hotel, Montreal, Canada, May 3-5, 1954, the American Association for Thoracic Surgery will initiate a thoracic surgical forum for the presentation of short papers on current thoracic research, anatomy, and modified surgical techniques. Papers at this session will be limited to 10 minutes (including the showing of lantern slides or other illustrative material) with 3 minutes maximum for the discussion of each paper. Abstracts (200 to 250 words) for the presentation of all papers at the 1954 meeting must be received on or before Jan. 1 and should be labeled "For Forum" or "For Regular Program." Five copies of each abstract should be sent to the secretary of the association, Dr. Paul C. Samson, 2938 McClure St., Oakland 9, Calif.

Dietetic Association Meets in Los Angeles.—The American Dietetic Association will hold its annual meeting at the Shrine Auditorium and Convention Hall, Los Angeles, Aug. 25-28. Dr. James R. Wilson, Secretary, A. M. A. Council on Foods and Nutrition, will report on "Low Sodium Foods and Diets" as part of a program on "Newer Findings in Diet Therapy," which will include "The Intake of Excess Fat and Calories in Relation to the Development of Human Atherosclerosis" by Dr. John W. Gofman, Berkeley, Calif., and "Comparative Effects of Diets Containing Large Amounts of Animal and Vegetable Fat Respectively, upon Serum Lipids in Normal and Abnormal Human Subjects" by Dr. Laurance W. Kinsell, Oakland, Calif. Participating in presentations on "Recent Research" will be Drs. Garnett Cheney, San Francisco ("The Present Status of Vitamin U Therapy in the Dietary Treatment of Peptic Ulcer") and Horace R. Getz, Altadena, Calif. ("What Are the Problems in Feeding the Tuberculous Patient?"). In a public relations program Tuesday evening Dr. Eugene Pumpian-Mindlin, Los Angeles, will have as his topic "If You Please." On Wednesday Dr. Wilton L. Halverson, San Francisco, will present "Bilateral Health Programs in Latin America" as the opening topic for a panel on "Steps Toward Better World Nutrition." Dr. James A. Halsted, Los Angeles, will present the physician's viewpoint in a panel on "Cooperative Approach Aids Medical Therapy" Thursday, 1 p. m., and Dr. Anthony J. Rourke, New York, will discuss teamwork during a panel on "Challenges to You," 2 p. m. Other presentations by physicians include:

Emotional Factors in Child Feeding, John A. Anderson, San Francisco.
The Obesity Problem, Harold I. Harvey, Berkeley.
Newer Concepts in the Treatment of the Diabetic, Samuel Soskin, Los Angeles.
Revisions of the Recommended Daily Dietary Allowances, Robert E. Shank, St. Louis.
Psychological Aspects of Food Faddism, Solon D. Samuels, Los Angeles.

At the annual banquet in the Hotel Statler, Friday, 7 p. m., Dr. Frank R. Bradley, St. Louis, will present the Marjorie Hulsizer Copher award for 1953.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

Area	July 25, 1953		July 26, 1952 Total
	Paralytic Type	Total Cases Reported	
New England States			
Maine	10	17	3
New Hampshire	..	4	1
Vermont	1	1	2
Massachusetts	10	22	8
Rhode Island	2	5	..
Connecticut	1	15	15
Middle Atlantic States			
New York	16	81	76
New Jersey	18	28	10
Pennsylvania	..	26	24
East North Central States			
Ohio	17	88	179
Indiana	..	14	34
Illinois	22	76	68
Michigan	15	84	79
Wisconsin	..	16	33
West North Central States			
Minnesota	34	78	38
Iowa	5	25	116
Missouri	15	39	33
North Dakota	2	4	1
South Dakota	..	9	15
Nebraska	8	10	72
Kansas	..	22	24
South Atlantic States			
Delaware	..	3	3
Maryland	9	22	3
District of Columbia	..	2	..
Virginia	20	51	15
West Virginia	9	26	32
North Carolina	23	87	15
South Carolina	4	11	7
Georgia	6	28	18
Florida	7	20	20
East South Central States			
Kentucky	3	17	51
Tennessee	11	51	15
Alabama	16	21	12
Mississippi	..	14	54
West South Central States			
Arkansas	8	12	16
Louisiana	9	31	39
Oklahoma	11	39	66
Texas	21	86	259
Mountain States			
Montana	2	5	8
Idaho	..	1	16
Wyoming	1	5	2
Colorado	2	9	31
New Mexico	..	2	22
Arizona	7	22	7
Utah	..	5	6
Nevada	..	1	..
Pacific States			
Washington	..	17	36
Oregon	3	5	14
California	46	95	75
Territories and Possessions			
Alaska	5	9	..
Hawaii	..	1	10
Puerto Rico	3	3	1
Total	402	1,365	1,684

LATIN AMERICA

Goiter Survey in El Salvador.—A survey, recently reported, indicates that endemic goiter in school children constitutes a serious public health problem in El Salvador. Based on the examination of nearly 35,000 school children in urban and rural areas, it revealed that 22.8% of 26,400 children outside the capital city had enlarged thyroids. In the capital the incidence was 1.1% for 8,000 children. Glands were considered enlarged if on palpation they were found to be four to five times their "normal" size. Of the total number of goiters, 6.2% were of the clearly visible type. The average iodine content of the salt was 0.22 parts of iodine per 10,000 parts of salt, whereas the recommended ratio for prevention of endemic goiter under ordinary circumstances is 1 part iodine per 10,000 parts salt.

FOREIGN

Course on Allergic Diseases.—A course on allergic diseases, including both theoretical instruction and practical work, will be given Oct. 19-23 at the Propaedeutic Medical Clinic of the Hôpital Broussais, under the direction of Prof. Pasteur Vallery-Radot. The course will include anaphylaxis and allergy; experimental anaphylaxis; respiratory allergy; alimentary allergy; cutaneous allergy; digestive, renal, cardiovascular, and hematological manifestations of allergy; allergy to physical agents; antihistamines; and treatment of allergic conditions. Since enrollment is limited, requests for registration should be addressed promptly to the Propaedeutic Medical Clinic of the Hôpital Broussais, 96, rue Didot, Paris XIV^e.

Seminar in Health Education.—The Central Council for Health Education in England will conduct its annual residential summer school in health education at Royal Holloway College, Surrey, just outside of London, Aug. 10-20, for professional workers in medical, educational, industrial, and welfare services. The program is organized on a group discussion basis, and a social program is also provided. The inclusive fee for tuition and residence is £16 16s. (about $47). Information may be secured from the Medical Director, Central Council for Health Education, Tavistock House, Tavistock Square, London, W.C.1.

CORRECTION

Medical Education Foundation.—The editorial "Medical Education Foundation Reports Progress," which appeared in The Journal July 11, 1953, page 1044, listed Connecticut among the eight leading states in foundation activity. The eight leading states should read in order as follows: Nebraska, Indiana, South Dakota, Vermont, Wyoming, New Hampshire, Colorado, and Delaware.

MEETINGS

American Medical Association: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Clinical Session, St. Louis, Dec. 1-4.
1954 Annual Session, San Francisco, June 21-25.
1954 Clinical Session, Miami, Florida, Nov. 30-Dec. 3.
1955 Annual Session, Atlantic City, N. J., June 6-10.
1955 Clinical Session, Boston, Nov. 29-Dec. 2.

National Conference on Physicians and Schools, Moraine-on-the-Lake Hotel, Highland Park, Ill., Sept. 30-Oct. 2. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago 10, Director.

Public Relations Institute, Drake Hotel, Chicago, Sept. 2-3. Mr. Leo E. Brown, 535 North Dearborn St., Chicago 10, Director.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, The Homestead, Hot Springs, Va., Sept. 10-12. Dr. William F. Mengert, 2211 Oak Lawn Ave., Dallas, Texas, Secretary.

American Association for the Surgery of Trauma, Drake Hotel, Chicago, Oct. 1-3. Dr. James K. Stack, 700 North Michigan Blvd., Chicago, Secretary.

American Congress of Physical Medicine, Palmer House, Chicago, Aug. 31-Sept. 4. Dr. Walter J. Zeiter, 30 North Michigan Ave., Chicago 2, Executive Director.

American Dietetic Association, Los Angeles, Aug. 24-28. Miss Ruth M. Yakel, 620 N. Michigan Ave., Chicago 11, Executive Secretary.

American Electroencephalographic Society, Commander and Continental Hotels, Cambridge, Mass., Aug. 17-22. Dr. John A. Abbott, Massachusetts General Hospital, Boston 14, Secretary.

American Hospital Association, San Francisco, Aug. 31-Sept. 3. Mr. George Bugbee, 18 East Division St., Chicago 11, Executive Director.

American Medical Writers' Association, Elk's Club, Springfield, Ill., Sept. 23. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

American Roentgen Ray Society, Netherland Plaza, Cincinnati, Sept. 29-Oct. 2. Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Fall Meeting, Yale University, New Haven, Conn., Sept. 7-9. Dr. Carl C. Pfeiffer, 1853 West Polk St., Chicago 12, Secretary.

Biological Photographic Association, Hotel Statler, Los Angeles, Aug. 31-Sept. 3. Miss Jane H. Waters, 533 West 57th St., New York 19, Secretary.

Colorado State Medical Society, Savoy Hotel, Denver, Sept. 29-Oct. 2. Mr. Harvey T. Stethman, 835 Republic Bldg., Denver 2, Executive Secretary.

Gerontological Society, Mark Hopkins Hotel, San Francisco, Aug. 25-27. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

Gulf Coast Conference on Industrial Health, Shamrock Hotel, Houston, Tex., Oct. 1-3. Dr. Sidney Schnur, 411 Medical Arts Bldg., Houston 2, Tex., Vice Chairman.

Kansas City Southwest Clinical Society, Kansas City, Mo., Sept. 28-Oct. 1. Dr. W. H. Algie, 825 North 7th Street, Kansas City, Kans., Secretary.

Kentucky State Medical Association, Brown Hotel, Louisville, Sept. 22-24. Dr. Bruce Underwood, 620 South Third St., Louisville 2, Secretary.

Michigan State Medical Society, Pantlind Hotel and Civic Auditorium, Grand Rapids, Sept. 23-25. Dr. L. Fernald Foster, 606 Townsend St., Lansing 15, Secretary.

Mississippi Valley Medical Society, Springfield, Ill., Sept. 23-25. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Montana Medical Association, Northern Hotel, Billings, Sept. 17-20. Mr. L. R. Hegland, 104 North Broadway, Billings, Executive Secretary.

National Medical Association, Nashville, Tenn., Aug. 10-14. Dr. John T. Givens, 1108 Church St., Norfolk 10, Va., Executive Secretary.

Neurosurgical Society of America, The Broadmoor, Colorado Springs, Colo., Sept. 23-27. Dr. C. D. Hawkes, 22 North Manassas St., Memphis 5, Tenn., Secretary.

Nevada State Medical Association, Carter Hotel, Elko, Sept. 24-26. Dr. William A. O'Brien III, 505 Chestnut St., Reno, Secretary.

Northern Minnesota Medical Association, Fergus Falls, Aug. 28-29. Dr. C. L. Oppegaard, Crookston, Secretary.

North Pacific Society of Internal Medicine, Harrison, B. C., Sept. 18-19. Dr. Clarence C. Pearson, 1115 Terry Ave., Seattle 1, Wash., Secretary.

North Texas-Southern Oklahoma Fall Clinical Conference, Wichita Falls, Texas, Sept. 16. Dr. C. H. Wilson, 1300 Eighth St., Wichita Falls, Texas, Secretary.

Pennsylvania, Medical Society of the State of, William Penn Hotel, Pittsburgh, Sept. 21-24. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

Regional Meetings, American College of Physicians:

North Dakota, Fargo, Sept. 12. Dr. Robert B. Radl, 221 Fifth St., Bismarck, Governor.

Arkansas-Oklahoma, Tulsa, Okla., Sept. 19. Dr. Wann Langston, 117 North Broadway, Oklahoma City 2, Governor.

Society of American Bacteriologists, Palace Hotel, San Francisco, Aug. 10-14. Dr. John H. Bailey, Sterling-Winthrop Research Institute, Rensselaer, N. Y., Secretary.

Southwestern Surgical Congress, Hotel Utah, Salt Lake City, Sept. 21-23. Dr. C. R. Rountree, 1227 Classen St., Oklahoma City 3, Secretary.

Tennessee Valley Medical Assembly, Read House Hotel, Chattanooga, Sept. 28-29. Dr. William G. Stephenson, 612 Medical Arts Bldg., Chattanooga 3, President.

U. S. Chapter, International College of Surgeons, Waldorf-Astoria, New York, Sept. 13-17. Dr. Karl Meyer, 1516 Lake Shore Drive, Chicago 10, Secretary.

Utah State Medical Association, Salt Lake City, Sept. 10-12. Dr. Homer E. Smith, 42 South Fifth East St., Salt Lake City 2, Secretary.

Washington State Medical Association, Olympic Hotel, Seattle, Sept. 13-16. Dr. Bruce Zimmerman, 338 White-Henry-Stuart Bldg., Seattle 1, Secretary.

FOREIGN

Association of Surgeons of Great Britain and Ireland, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

Canadian Medical Association, Vancouver, B. C., Canada, June 18-22, 1954. Dr. T. C. Routley, 135 St. Clair Ave. W., Toronto 5, Ont., Canada, General Secretary.

Congress of International Anesthesia Research Society, Chateau Frontenac, Quebec, Canada, October 26-29. Dr. A. William Friend, 515 Nome Ave., Akron 20, Ohio, Chairman, Program Committee.

Congress of the International Association of Limnology, Cambridge and Windermere, England, Aug. 20-30. For information write: Professor G. C. Hutchinson, Osborn Zoological Laboratory, Yale University, New Haven, Conn., U. S. A.

Congress of the International League Against Rheumatism, Geneva, Switzerland and Aix-les-Bains, France, Aug. 23-29. For information write: Dr. W. Tegner, The London Hospital, London E.1, England.

Congress of the International Society of Angiology, Lisbon, Portugal, Sept. 18-20. Dr. Henry Haimovici, 105 East 90th St., New York 28, N. Y., U. S. A., Secretary.

Congress of the International Society of Surgery, Lisbon, Portugal, Sept. 14-20. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

Interim Meeting, Aero Medical Association, University of Brussels Medical School, Brussels, Belgium, Sept. 24-27. Dr. Andre Allard, Medical Director of SABENA, 145 Rue Royale, Brussels, Belgium, Secretary.

International Cancer Congress, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

International Conference on Thrombosis and Embolism, Basle, Switzerland, July 15-19, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

International Congress of Acupuncture, Kolpinghaus, Adolf-Kolping-Strasse 1, Munich, Germany, August 22-25. Dr. G. Bachmann, 29 Lilienstrasse, München 9, Germany, Organizer and Secretary.

International Congress of Electroencephalography and Clinical Neurophysiology, Boston, Mass., U. S. A., Aug. 18-21. Dr. Robert S. Schwab, Massachusetts General Hospital, Boston 14, Mass., U. S. A., Secretary-General.

International Congress of the European Society of Haematology, Amsterdam, Holland, Sept. 8-12. Dr. M. C. Verloop, Maliesingle 15, Utrecht, Holland, Secretary.

International Congress on Genetics, Bellagio, Italy, August 24-31. Prof. C. Barigozzi, Instituto de Genetica, Universita de Milano, 10 via Celoria, Milan, Italy, Secretary.

International Congress of Hippocratic Medicine, Evian, France, Sept. 3-6. Prof. P. Delore, 13, rue Jarente, Lyon, France, Secretary-General.

International Congress of Hydroclimatism and Thalassotherapy, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni Venac 1, Belgrade, Yugoslavia, Secretary General.

International Congress of International College of Surgeons, Sao Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U.S.A., Secretary-General.

International Congress of Logopedics and Phoniatrics, Zurich, Switzerland, Sept. 1-5. Dr. Deso A. Weiss, 115 East 86th St., New York 28, N. Y., U. S. A., General Secretary.

International Congress on Mental Health, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

International Congress of Microbiology, Rome, Italy, Sept 6-12. For information write: Dr. V. Puntoni, Citta Universitaria, Rome, Italy.

International Congress on Obstetrics and Gynecology, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

International Congress of Paediatrics, Havana, Cuba, Oct. 12-17. Prof. Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba, President.

International Congress of Psychology, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

International Congress for Psychotherapy, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

International Congresses of Tropical Medicine and Malaria, Istanbul, Turkey, Aug. 28-Sept. 4. Professor Dr. Ihsan Sükrü Aksel, Tunel Meydam, Beyoglu, Istanbul, Turkey, General Secretary.

International Gerontological Congress, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

International Leprosy Congress, Madrid, Spain, Oct. 3-10. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

International Neurological Congress, Lisbon, Portugal, Sept. 7-12. Prof. Almeida Lima, Avenida do Brazil 53, Lisbon, Portugal, Secretary-General.

International Office of Documentation of Military Medicine, Rome, Italy, Oct. 14-18. Colonel Medecin Prof. A. Campana, Office of the Ministero della Difesa-Esercito, Rome, Italy, Secretary.

International Physiological Congress, Montreal, Canada, Aug. 31-Sept. 4. Dr. A. S. V. Burgen, Dept. of Physiology, McGill University, Montreal, Canada, Secretary.

International Society for the Study of Biological Rhythms, Basle, Switzerland, Sept. 18-19. For information write: Prof. Dr. F. Georgi, Neurologische Universitats-Poliklinik, Socinstrasse 55, Basle, Switzerland.

International Veterinary Congress, Stockholm, Sweden, Aug. 9-15. Prof. Axel Isaksson, Institute of Veterinary Medicine, Stockholm 50, Sweden, Secretary.

Journees Medicales, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geofroix, Colombes (Seine) France.

Latin American Congress of Obstetrics and Gynecology, Buenos Aires, Argentina, Oct. 26-31.

Latin American Congress of Otorhinolaryngology, Caracas, Venezuela, Feb. 21-25, 1954. Dr. Victorino Marquez Reveron, Centro Medico, Caracas, Venezuela, Secretary-General.

Pacific Science Congress, Quezon City and Manila, Philippines, Nov. 16-28. Dr. Patrocinio Valenzuela, College of Pharmacy, University of the Philippines, Quezon City, Philippines, Secretary-General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, Mexico, D.F., Mexico, Feb. 28-March 4, 1954.

Pan American Medical Association, International Medical Cruise Congress, S. S. Nieuw Amsterdam, Jan. 6-22, 1954. Dr. Joseph J. Eller, 745 Fifth Avenue, New York 22, N. Y., U. S. A., Executive Director.

Pan American Medical Women's Alliance, Beekman Towers Hotel, New York, N. Y., Sept. 24-Oct. 1. Dr. Ina Marsh, 140 Linwood Ave., Buffalo, N. Y., U. S. A., Registration Chairman.

Persian Gulf Medical Society, Dhahran, Saudi Arabia, Dec. 7-8. Dr. N. J. Conan Jr., Department of Internal Medicine, Arabian American Oil Company, Dhahran, Saudi Arabia, Secretary.

Regional Meeting, American College of Physicians, San Juan, Puerto Rico, Oct. 15-17. Dr. R. Rodriquez-Molina, Veterans Administration Center, San Juan, Puerto Rico, Governor.

Sectional Meeting, American College of Surgeons, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

World Conference on Medical Education, British Medical Association House, Tavistock Square, W.C.1, London, England, Aug. 22-29. Secretariat: World Medical Association, 2 East 103d St., New York 29, N. Y., U. S. A.

World Congress of the World Confederation for Physical Therapy, London, England, Sept. 7-12. Miss M. J. Neilson, Chartered Society of Physiotherapy, Tavistock House, South, Tavistock Square, London, W.C.1, England, Secretary.

World Federation for Mental Health, Vienna, Austria, Aug. 17-23. For information write: Miss E. M. Thornton, 19 Manchester St., London, W.1, England.

World Medical Association, The Hague, Netherlands, Aug. 31-Sept. 7. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., Secretary-General.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alaska:* Anchorage and Juneau, Sept. 7. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

Arizona:* Phoenix, Oct. 24. Ex. Sec., Mr. Robert Carpenter, 541 Security Bldg., Phoenix.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Director of Medical Services, Guam Memorial Hospital, Agana.

Montana: Helena, Oct. 5. Sec., Dr. S. A. Cooney, 214 Power Block, Helena.

New Hampshire: Concord, Sept. 9. Sec., Dr. John S. Wheeler, 107 State House, Concord.

New Mexico:* Oct. 12-13, Santa Fe. Sec., R. C. Derbyshire, 227 E. Palace Ave., Sante Fe.

North Carolina: *Reciprocity.* Asheville, Oct. 12. Sec., Dr. Joseph J. Combs, 716 Professional Bldg., Raleigh.

Pennsylvania: *Examination.* Philadelphia and Pittsburgh, July. Act. Sec., Mrs. Margaret G. Steiner, Box 911, Harrisburg.

Texas: Fort Worth, Nov. 12-14. Reciprocity applicants must be completed 30 days prior to the meeting date. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

Utah: *Examination.* Salt Lake City, July. Asst. Dir., Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City.

Puerto Rico: *Reciprocity.* Santurce, Aug. 4. Sec., Mr. Luis Cueto Coll, Box 9156, Santurce.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

Colorado: *Examination.* Denver, Sept. 9-10. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 18.

District of Columbia: *Examination* Washington, Oct. 19-20. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

Oklahoma: *Examination.* Oklahoma City, August 28-29. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: Portland, Aug. 29. Final date for filing application is Aug. 12. Portland, Dec. 5. Sec., Dr. Charles D. Byrne, University of Oregon, Eugene.

Texas: *Examination.* Austin, October. Chief Clerk, Mrs. Sandra Allen, 407 Perry-Brooks Bldg., Austin.

Wisconsin: *Examination.* Madison, Sept. 19. Final date for filing application is Sept. 11. Milwaukee, Dec. 5. Final date for filing application is Nov. 27. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

---

* Basic Science Certificate required.

DEATHS

Hardesty, John Frank ⊕ St. Louis; born in Winfield, Mo., Dec. 31, 1887; St. Louis University School of Medicine, 1914; since 1934 associate professor of ophthalmology and since 1950 acting chairman of the department at his alma mater; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology, American Ophthalmological Society, Southern Medical Association, and the Association for Research in Ophthalmology; formerly medical director of St. Louis Society for the Blind; fellow of the American College of Surgeons; served during World War I; on the medical advisory board of Selective Service during World War II; affiliated with St. Louis City Sanitarium, St. Mary's Group of Hospitals, Missouri Baptist Sanitarium, and Bethesda General Hospital; died June 20, aged 65, of melanoma.

Harris, Isaac Burt ⊕ Columbus, Ohio; born in Batesville, Jan. 15, 1873; Starling Medical College, Columbus, 1900; past president of the Columbus Academy of Medicine; fellow of the American College of Surgeons; joined the faculty at his alma mater, and continued on the staff when in 1914 it became Ohio State University College of Medicine, where he was assistant professor of clinical surgery from 1914 to 1925, and professor of clinical surgery from 1925 to 1946, when he retired with the title of emeritus professor; at one time a member of the city board of health; medical director and from 1915 to 1946 chief of staff at St. Francis Hospital; died in Grant Hospital, June 10, aged 80.

Hiller, Frederick ⊕ Chicago; born in Zittau, Germany, April 20, 1891; Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany, 1917; associate professor of nervous and mental diseases at Northwestern University Medical School; formerly on the faculty of the University of Chicago; specialist certified by the American Board of Psychiatry and Neurology; member of the American Association of Neuropathologists; on the courtesy staffs of St. Francis and Evanston hospitals in Evanston, Ill., and Passavant Hospital; on the staff of the Wesley Memorial Hospital; died in Evanston, Ill., June 28, aged 62, of coronary occlusion.

Wiggers, Herbert August ⊕ New York City; born in New York Sept. 26, 1907; McGill University Faculty of Medicine, Montreal, Canada, 1934; certified by the National Board of Medical Examiners; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychoanalytic Association and the American Psychiatric Association; secretary of the New York Psychoanalytic Society; treasurer of the New York Psychoanalytic Institute, where he taught at the School of Applied Psychoanalysis; consulting psychiatrist, Towns Hospital; died in Dobbs Ferry, N. Y., June 22, aged 46, of coronary disease.

Dugger, John Wesley ⊕ Jackson, Miss.; University of Tennessee College of Medicine, Memphis, 1915; past president of the Mississippi State Medical Association; member of the American Public Health Association; for many years director of the division of hygiene and factory inspection, state board of health; served as director of Pearl River County Health Unit, Marshall County Health Department, and the tricounty health district composed of Lawrence, Jefferson Davis, and Covington; died in Gulfport, June 2, aged 68, of acute coronary occlusion and myocardial infarction.

Bell, Edward, St. Louis; Meharry Medical College, Nashville, Tenn., 1916; died June 8, aged 62, of cerebral hemorrhage.

D'Amato, Charles Richard ⊕ East Rutherford, N. J.; Georgetown University School of Medicine, Washington, D. C., 1936; served during World War II; school physician; resident in radiology at the Hackensack (N. J.) Hospital; died June 5, aged 42, of coronary thrombosis.

DeMont, Charlotte, Los Angeles (licensed in California in 1917); died May 11, aged 78, of arteriosclerosis.

Dengler, Raymond Archibald, Breiningsville, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1908; on the courtesy staff of Sacred Heart Hospital, where he died June 3, aged 70, of cerebral hemorrhage.

Dill, Wallace Wright ⊕ Norristown, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; served on the staff of the Montgomery Hospital; died June 5, aged 76, of a heart attack.

Dunn, Joseph Francis ⊕ Chester, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1908; at one time Delaware County coroner's physician; served on the staff of the Sacred Heart Hospital; founder of the diabetic clinic at Taylor Hospital in Ridley Park; died June 11, aged 69, of pulmonary embolism.

Easom, Jack Johnson ⊕ Carthage, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1947; died May 28, aged 33.

Edlow, Ernest S. ⊕ Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1921; died April 25, aged 56, of coronary thrombosis.

Ellsworth, Elmer Harvey, Hot Springs National Park, Ark.; Rush Medical College, Chicago, 1904; died June 2, aged 74.

Epperson, Paul Stenerson ⊕ Milwaukee; Medical College of Virginia, Richmond, 1907; specialist certified by the American Board of Radiology; member of the Radiological Society of North America; formerly assistant clinical professor of roentgenology at Marquette University School of Medicine; served during World War I; affiliated with St. Mary's Hospital; died at Genesee Lake near Oconomowoc, April 30, aged 66, of a heart attack.

Folk, John L. ⊕ Fairfax, S. C.; Medical College of the State of South Carolina, Charleston, 1888; died May 8, aged 86, of coronary thrombosis.

Fowler, Wiliam Robert, Hamilton, Texas; Arkansas Industrial University Medical Department, Little Rock, 1890; died in the Hamilton Clinic & Hospital June 9, aged 85, of coronary occlusion.

Frank, Irving Leslie ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1937; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the American College of Surgeons; formerly on the faculty of Jefferson Medical College; affiliated with the Jewish Hospital and the Albert Einstein Medical Center; died June 4, aged 38.

Franklin, Abraham Lincoln, Providence, Ky.; Barnes Medical College, St. Louis, 1893; physician for the Louisville and Nashville Railroad; died May 30, aged 85.

Frisch, Frank Peter ⊕ Willmar, Minn.; University of Minnesota Medical School, Minneapolis, 1914; specialist certified by the American Board of Otolaryngology; fellow of the American College of Surgeons; on the staffs of the Willmar Hospital and the Rice Memorial Hospital, where he died March 8, aged 68, of left ventricular failure, coronary sclerosis, cardiomegaly, and leukemia.

Gaberman, David B. ⊕ Detroit; Detroit College of Medicine and Surgery, 1920; affiliated with Florence Crittenton and Brent General hospitals; died June 12, aged 58, of heart disease.

Gellman, Isaac I., Kew Gardens Hills, L. I., N. Y.; Chicago College of Medicine and Surgery, 1914; fellow of the American College of Chest Physicians; served on the staffs of various Veterans Administration hospitals; died June 13, aged 63, of cerebral hemorrhage.

⊕ Indicates Member of the American Medical Association.

Gorr, Charles William, Chicago; Rush Medical College, Chicago, 1903; died in the Grant Hospital June 29, aged 74, of cerebral accident.

Graham, Edwin E. ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1887; emeritus professor of diseases of children at his alma mater; member of the American Pediatric Society; past president of the Philadelphia Pediatric Society; affiliated with Philadelphia General Hospital; consultant pediatrician at the Training School of Vineland, N. J.; received the honorary degree of doctor of science from Jefferson in 1950; died in Madison, Va., June 10, aged 89.

Gray, Joseph Rea Taylor Jr. ⊕ Chester, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1898; member of the American Society of Clinical Pathologists; for many years city bacteriologist; affiliated with the J. Lewis Crozer Homeopathic Hospital; died June 9, aged 83, of arteriosclerosis and myocarditis.

Green, Norman Smith, Seattle, Wash.; University of Cincinnati College of Medicine, 1943; member of the Ohio State Medical Association; formerly practiced in Cincinnati, where he was on the staffs of the Bethesda and Deaconess hospitals; died June 4, aged 40.

Hall, Harry Bolander ⊕ Boise City, Okla.; St. Louis College of Physicians and Surgeons, 1921; served as health superintendent of Cimarron County; chief of staff of the Cimarron County Hospital; died in St. Joseph Hospital, Clayton, N. Mex., May 26, aged 61, of occlusion of the basal artery of the brain.

Hall, Hugh Joseph ⊕ Providence, R. I.; Hahnemann Medical College and Hospital of Philadelphia, 1930; died in the Roger Williams General Hospital June 20, aged 56, of arteriosclerotic heart disease and diabetes mellitus.

Hanna, George Orvil, Lingle, Wyo.; Ensworth Medical College, St. Joseph, Mo., 1905; died in Scottsbluff, Neb., May 16, aged 71.

Harrison, Edwin Marriott ⊕ Chicago; Dunham Medical College, Chicago, 1902; Jenner Medical College, Chicago, 1904; Chicago College of Medicine and Surgery, 1909, and Bennett Medical College, Chicago, 1912; fellow of the American College of Surgeons; served during World War I; on the staff of the Illinois Masonic Hospital; died June 24, aged 76, of coronary thrombosis.

Hart, James Luke, Denver; University of Colorado School of Medicine, Denver, 1942; formerly affiliated with the U. S. Public Health Service Reserve; died in June, aged 35.

Hearn, Marion ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1902; died June 2, aged 78, of coronary thrombosis.

Heise, William Frederick Carl ⊕ Winona, Minn.; Rush Medical College, Chicago, 1896; fellow of the American College of Surgeons; on the staff of the Winona General Hospital; died May 29, aged 77.

Hermance, William Oakley ⊕ Philadelphia; University of Pennsylvania Department of Medicine, 1894; served on the faculty of the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; formerly clinical professor of proctology at Woman's Medical College of Pennsylvania; member and past president of the American Proctologic Society; specialist certified by the American Board of Proctology; died June 12, aged 80.

Herrick, Fred Samuel, Chicago; Bellevue Hospital Medical College, New York, 1884; died in the Illinois Masonic Hospital June 17, aged 95, of carcinoma of the prostate.

Herrington, Lewis Marion, McKees Rocks, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1901; died in Winter Haven, Fla., May 17, aged 95, of cerebral hemorrhage.

Hervey, James R. ⊕ Moorhead, Miss.; Atlanta College of Physicians and Surgeons, 1902; formerly mayor; past president of the Citizens' State Bank; died May 22.

Higbee, Frank O., Three Oaks, Mich.; the Hahnemann Medical College and Hospital, Chicago, 1894; College of Physicians and Surgeons of Chicago, 1895; served as health officer; died in Gary, Ind., June 5, aged 83, of chronic myocarditis.

Howitt, Henry Orton ⊕ San Rafael, Calif.; Cooper Medical College, San Francisco, 1887; an Associate Fellow of the American Medical Association; died in Everett, Wash., June 8, aged 90, of arteriosclerotic heart disease.

Huff, Asher DeWitt ⊕ Marion, Ind.; Indiana University School of Medicine, Indianapolis, 1932; died April 18, aged 55, of coronary occlusion.

Hussey, Cyril Christopher ⊕ Sidney, Ohio; Johns Hopkins University School of Medicine, Baltimore, 1919; affiliated with Piqua (Ohio) Memorial Hospital and the Wilson Memorial Hospital, where he died May 9, aged 59, of peritonitis and perforated duodenal ulcer.

Ingalls, Albert Thompson ⊕ Los Angeles; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; died May 1, aged 78.

Lawry, Carl C. ⊕ Earlville, Ill.; Northwestern University Medical School, Chicago, 1903; an Associate Fellow of the American Medical Association; died in Vandalia recently, aged 76, of coronary arterial disease.

Lindley, Don Carlos ⊕ New Castle, Pa.; Jefferson Medical College of Philadelphia, 1901; specialist certified by the American Board of Ophthalmology; served during World War I; on the staffs of the Jameson Memorial and New Castle hospitals; surgeon for the Baltimore and Ohio and Pennsylvania railroads; died May 8, aged 77, of coronary thrombosis.

Little, Abby Noyes ⊕ Laconia, N. H.; Woman's Medical College of Pennsylvania, Philadelphia, 1894; on the courtesy staff of Laconia Hospital, where she died May 28, aged 81, of pulmonary embolism.

Loughead, Raymond B. ⊕ Boothwyn, Pa.; Medico-Chirurgical College of Philadelphia, 1904; died May 14, aged 88.

McGrath, John Henry ⊕ Waterbury, Conn.; Yale University School of Medicine, New Haven, 1908; affiliated with St. Mary's Hospital, where he died June 15, aged 69, of coronary occlusion.

Menown, Roland R. ⊕ St. Louis; Marion-Sims-Beaumont Medical College, St. Louis, 1903; died June 10, aged 72, of coronary thrombosis.

Miles, James Oliver, Washington, D. C.; Howard University College of Medicine, Washington, 1932; during World War II volunteered his services to the Army as an examining physician of inductees and for this work was awarded a medal of recognition by the President; for many years on the staff of the Freedmen's Hospital; died June 14, aged 57.

Montgomery, Alexander ⊕ Milwaukee; Milwaukee Medical College, 1909; fellow of the International College of Surgeons and the American College of Surgeons; affiliated with Johnston Emergency and Evangelical Deaconess hospitals; died June 9, aged 66, of myocardial infarction.

Robinson, Andrew Smith ⊕ Akron, Ohio; Western Reserve University School of Medicine, Cleveland, 1914; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the Industrial Medical Association; served during World War I; affiliated with City, Goodyear, and St. Thomas hospitals; died June 17, aged 63, of cancer of the lungs.

Rouse, Francis Ernest ⊕ Williamsport, Pa.; St. Louis College of Physicians and Surgeons, 1906; also a graduate in pharmacy; died May 8, aged 77.

Ryburn, John Patrick ⊕ St. Louis; National University of Arts and Sciences Medical Department, St. Louis, 1918; member of the American Academy of General Practice; on the staff of the Missouri Baptist Hospital, where he died June 8, aged 59, of coronary thrombosis.

Sansoucy, Jerome Aime ⊕ Washington, D. C.; Georgetown University School of Medicine, Washington, 1936; died June 25, aged 46, of melanocarcinomatosis.

Schuette, William Henry ⊕ Mason City, Ill.; Hering Medical College, Chicago, Homeopathic, 1904; an Associate Fellow of the American Medical Association; died in Memorial Hospital, Springfield, April 10, aged 81, of injuries received when struck by an automobile.

Sheftman, Murray, Yonkers, N. Y.; University and Bellevue Hospital Medical College, New York, 1926; served during World War II; died March 16, aged 50, of acute coronary thrombosis.

Sherwood, Harry ⊕ New York City; New York Homeopathic Medical College and Flower Hospital, New York, 1918; on the staff of the Mount Sinai Hospital; died March 12, aged 62.

Simpson, Carl Franklin ⊕ Tulsa, Okla.; University of Louisville School of Medicine, Louisville, Ky., 1926; secretary-treasurer of the Tulsa County Medical Society for five terms; served as chief of staff of St. John's Hospital; died June 22, aged 53, of coronary occlusion.

Steinfield, Winton ⊕ Yaphank, L. I., N. Y.; University of Pennsylvania School of Medicine, Philadelphia, 1941; member of the Michigan State Medical Society; specialist certified by the American Board of Internal Medicine; served during World War II; formerly on the staff of the Veterans Administration Hospital in Tucson, Ariz.; drowned in Delaware Bay off Cape May, N. J., in April, aged 35.

Swindler, Edwin Booth, Stuttgart, Ark.; Memphis (Tenn.) Hospital Medical College, 1912; died in Coral Gables, Fla., June 20, aged 70, of cerebral hemorrhage.

Thomas, Claude LeRoy, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1901; served on the staffs of Hahnemann Hospital and St. Luke's and Children's Medical Center; died June 5, aged 79, of acute cardiac dilatation.

Thompson, William Edward, Los Angeles; McGill University Faculty of Medicine, Montreal, Canada, 1882; L.R.C.P. and L.R.C.S., Edinburgh, 1886, and L.F.P.S., Glasgow, 1886; died April 4, aged 93, of congestive heart failure.

Treacy, Alfred Joseph M. ⊕ Philadelphia; Temple University School of Medicine, Philadelphia, 1915; specialist certified by the American Board of Physical Medicine and Rehabilitation; served during World War I; member of the American Rheumatism Association; at one time medical officer in the contagious diseases division, city health department; died in Physicians and Surgeons Hospital June 7, aged 72, of chronic myocarditis and uremia.

Turnoff, David ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1936; specialist certified by the American Board of Internal Medicine; served during World War II; associate in medicine at his alma mater; affiliated with Nazareth, Kensington, and Philadelphia General hospitals; died June 14, aged 41.

Vonnahme, Conrad Benedict ⊕ East St. Louis, Ill.; Washington University School of Medicine, St. Louis, 1905; died in St. Mary's Hospital June 8, aged 72, of hemolytic anemia.

Watts, Stephen Hurt ⊕ Charlottesville, Va.; Johns Hopkins University School of Medicine, Baltimore, 1901; formerly professor of surgery and gynecology at the University of Virginia Department of Medicine; member of the American Surgical Association and Southern Surgical Association; fellow of the American College of Surgeons; died in the University of Virginia Hospital June 7, aged 75, of intraventricular hemorrhage.

Webb, William Thomas, Breckenridge, Texas; Physio-Medical College of Texas, Dallas, 1906; formerly city and county health officer; died May 29, aged 79, of bronchopneumonia.

Whipper, Ionia Rollin, Washington, D. C.; Howard University College of Medicine, Washington, 1903; died April 23, aged 78.

Williams, Frederick Smith, White Plains, N. Y.; Harvard Medical School, Boston, 1903; registrar of records for the Bronx County Health Department from 1912 to 1945; died June 18, aged 78, of a heart attack.

Williamson, Cleburne Milton ⊕ Corpus Christi, Texas; University of Texas School of Medicine, Galveston, 1923; died May 24, aged 59.

Willis, Morton William ⊕ Jamaica, N. Y.; University and Bellevue Hospital Medical College, New York, 1932; assistant clinical professor of medicine at the New York Medical College, Flower and Fifth Avenue Hospitals; specialist certified by the American Board of Internal Medicine; affiliated with Mount Sinai Hospital in New York, Queens General, and Jamaica hospitals; died May 23, aged 45.

Wilson, George Wheeler, Captain, U. S. Navy, retired, Nevada, Mo.; St. Louis University School of Medicine, 1914; entered the Navy Aug. 4, 1920; retired April 1, 1950; on the staff of State Hospital No. 3, where he died June 9, aged 61, of coronary thrombosis.

Wolf, Charles N., York, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1889; died May 15, aged 89, of arteriosclerosis.

Wolfe, Jacob S. ⊕ Bloomfield, N. J.; College of Physicians and Surgeons, Baltimore, 1890; an Associate Fellow of the American Medical Association; formerly member of the board of education and the board of health, of which he was president; affiliated with Mountainside Hospital, Montclair; died in Akron, Ohio, May 17, aged 87, of bronchopneumonia.

Woods, Robert Andrew, Pittsburgh; University of Tennessee Medical Department, Nashville, 1882; died June 22, aged 90, of complications resulting from a fall and a fractured hip.

Zwick, Karl George ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1903; assistant professor of dermatology and syphilology at University of Cincinnati College of Medicine; specialist certified by the American Board of Dermatology and Syphilology; member of the American Academy of Dermatology and Syphilology; affiliated with Cincinnati General and Deaconess hospitals; died May 30, aged 75.

DIED WHILE IN MILITARY SERVICE

Fidler, Albert John Eugene ⊕ Commander, U. S. Navy, Coronado, Calif.; born in Allentown, Pa., April 24, 1903; St. Louis University School of Medicine, 1929; following completion of his internship at the U. S. Marine Hospital in Staten Island, N. Y., served with the U. S. Public Health Service, and from 1932 through 1942 practiced medicine in Allentown, Pa., where he was a member of the surgical staff of the Sacred Heart Hospital and of the Allentown Hospital; receiving a commission in the medical corps of the Naval Reserve in 1942, reported in May of that year to the Navy Yard Dispensary, Philadelphia, for indoctrination and duty; transferred to the regular Navy in 1946; during his naval career served aboard various ships of the Fleet and at Navy Medical Department facilities throughout the United States; in August, 1952, reported to the Naval Ordnance Test Station, Inyokern, Calif., where he was serving at the time of his death; awarded the European and Asiatic-Pacific Theater Campaign Ribbons, each with one bronze star; died June 12, aged 50, of injuries received in an automobile accident.

Wilde, Roger Conant Jr., Evanston, Ill.; born in Orleans, Vt., Aug. 27, 1927; University of California Medical School, San Francisco, 1951; after interning a year at the University of California Hospital in San Francisco was assistant resident in pediatrics at the same hospital; in October, 1952, was commissioned in the medical corps of the navy and reported for duty at the U. S. Naval Hospital in Oakland, Calif.; after a short tour at the naval base at Litchfield Park, Ariz., was sent to Pensacola, Fla., in April for flight surgeon training; lieutenant (jg) medical corps of the U. S. Naval Reserve; killed in a plane crash near Pensacola, Fla., May 26, aged 25.

GOVERNMENT SERVICES

ARMY

Following is an abstract of a statement from the Army.—ED.

Three Years of Medical Service in Korea.—During the three years of fighting in Korea, the Army Medical Service, with some help from other nations and services, had the task of maintaining the health of and caring for wounded and injured soldiers from some 15 nations of the world.

The primary interest of the Medical Service, however, was the troops of the United States Army who had come from the relatively tranquil life of occupation duty in Japan to fight a series of demoralizing battles in the extreme heat of the Korean summer, the extreme cold of the Korean winter, over frozen ridges, in insect-infested rice paddies, and through monsoons. The problem was aggravated by the hordes of refugees and homeless wanderers who jammed roads and represented a mobile source of infection and disease which was almost impossible to control.

As soon as possible after landing, the Medical Service began forceful campaigns of preventive medicine designed to halt the advance of disease and impress upon the individual soldier the need of taking necessary sanitary measures to protect himself. The result of this campaign is self-evident in the subsequent decline of the disease rates. The preventive medicine program was backed up later by regular medical inspections of troop areas, especially in the rear, to assure that proper sanitary measures were being taken.

Battle Injuries and Wounds.—The rates of occurrence for battle wounds and injuries have been far from constant during the past three years. The peak for battle casualties came in September, 1950, shortly after the offensive which carried UN forces to the Yalu River in Manchuria. At this time there were 1,187 casualties per 1,000 average strength per year. The lowest rate for casualties came in March, 1952, when 22 per 1,000 average strength per year were reported.

The fatality rate of wounded has steadily declined through the years so that now, for the three years in Korea, it has reached an all-time low of 2.3%. This figure represents a considerable drop from the 4.5% of World War II, and the World War I figure of 8.1%, excluding gas casualties.

At the same time, the proportion of wounded and injured men who have been returned to duty has increased from the World War II average of 77 for every 100 casualties admitted to medical facilities to about 88 per 100 casualties admitted. Now, however, instead of separating certain partially disabled men from the service, as was done during World War II, the Army has adopted the policy of placing these men in limited duty assignments as combat instructors, thereby minimizing manpower attrition.

Several other factors involving medical treatment have also played an important role in decreasing the fatality rate and in increasing the number of wounded and injured to be returned to duty. High on the list of factors which contribute to this lowering of mortality are the new biologicals that were available throughout the medical system from the very beginning of this operation.

The Mobile Army Surgical Hospital, an innovation since World War II, has also contributed to the lowered death rate. It brings definitive surgical treatment closer to the front lines than ever before. Recently, one of these units, designed to care for no more than 60 patients at a time, treated its 50,000th patient since the Korean conflict started.

A third factor, related directly to the specialist training program of the Army instituted in 1946, has been the complete staffing of the forward area hospitals with highly qualified surgeons and orthopedists, to an extent probably not equaled in World War II. The presence of the well-organized base in Japan, coupled with adequate air evacuation facilities that brought patients from the forward hospitals to the base hospitals in the shortest possible time, has had a definite influence. The helicopter plays an ever-increasing part in the rapid, smooth, and comfortable evacuation of seriously wounded men from the battalion aid station. The trip to a surgical hospital normally an hour or more away by ground transportation, takes only a few minutes. Helicopter ambulance units under the direct control of the division surgeon also have recently been organized.

Nonbattle Injuries.—The peak of nonbattle injuries occurred during the first winter in Korea. Cold injury—frostbite and trench foot—contributed heavily to the nonbattle casualty rates of admission during these months and was considered one of the major medical problems in Korea.

The first cold injury cases were reported in November, 1950, when the Eighth Army had forced the enemy far into North Korea near the Manchurian border where cold weather had already set in. The troops, however, were equipped with cold weather clothing and, because enemy resistance was light, the incidence of cold injury was relatively low.

When the Chinese Communists entered the war and forced the withdrawal from North Korea, however, cold injury rates soared. Troops fought and lived in temperatures as low as 25 degrees below zero Fahrenheit. Units were cut off and pinned down by enemy action. Troops suffered from exposure, loss of clothing and equipment, and lack of supply and warm meals.

Cold injury incidence reached its peak during December, 1950, when 155.4 cases per thousand average strength per year were admitted to medical facilities. Most of these cases were admitted for frostbite, but trench foot incidence was also high.

The highest monthly rate for nonbattle casualty admissions during the entire Korean campaign occurred during January, 1951, when 352 cases per thousand average strength per year were admitted. Of this number, almost half were for cold injury sustained during heavy defensive action in the Wonju-Suwan area. The remainder can be attributed to accidents involving vehicles and weapons.

To offset the high incidence of cold injury, the Army inaugurated a preventive program in Korea and cold weather indoctrination in the United States in the fall of 1950. Had this not been done, the rate would most certainly have reached more serious proportions. Indoctrination on the use of cold weather equipment was instituted as far down in echelon as company and platoon level.

Since the first winter in Korea, 1950-1951, the incidence of cold injury cases has steadily declined. The peak weekly rate during the 1951-1952 season was 51 cases per thousand average strength per year as against the peak of 293 cases per thousand average strength per year experienced during the first week of December, 1950. The most recent season, 1952-1953 appears to represent a further improvement, with the peak rate at 13.17 cases per thousand average strength per year.

Disease.—Disease has been the greatest enemy of the American soldier in Korea for the past three years, having rendered ineffective many more soldiers than have Communist bullets and weapons. Korea is abundantly infested with insects that spread disease; lice that spread typhus and relapsing fever; fleas that carry endemic typhus; flies that carry intestinal diseases; mites that are suspected of carrying hemorrhagic fever; and mosquitoes that spread malaria. The country has an abundance of rodents that act as hosts to many of the disease-bearing insects. Refuse is generally left lying in piles or thrown into open ditches, while the disposal of waste is extremely primitive.

Korea is a nation in which disease rates reach staggering proportions. Dysentery, diarrhea, and enteritis have long caused severe morbidity. Malaria, venereal disease, and typhus fever are serious problems. Typhoid, leprosy, smallpox, and encephalitis are prevalent.

The success of the preventive medicine program of the Medical Service is attested to by simply comparing the month of August of 1950, 1951, and 1952. In August, 1950, there were 1,394 admissions per thousand average strength per year. This rate was cut by August, 1951, to 571 admissions per thousand strength and to 466 in August of 1952.

Neuropsychiatric Disorders and Treatment.—Based on late World War II experience, neuropsychiatric treatment during the Korean campaign followed three new principles: treatment as far forward as possible, centralization of screening and treatment, and the avoidance of a hospital atmosphere. By following these three principles, experience has shown that 40 to 60% of all combat neuropsychiatric casualties can be returned to duty after treatment on an excused-from-duty basis. The incidence of neuropsychiatric disorders among troops in Korea reached its peak shortly after the hostilities began in 1950 and has declined ever since.

Neuropsychiatric cases in Korea have been classed into five categories: (1) psychoneurotic disorders; (2) character and behavior disorders; (3) diseases of the nervous system; (4) psychotic disorders; and (5) all other psychiatric disorders.

Of the five classifications, that of psychoneurotic disorders has accounted for the greatest proportion of casualties, with 35.9%. Psychoneurosis is the term fitting the anxiety, dissociative, obsessive-compulsive, and depressive behavior patterns. Included in the "all other psychiatric disorders" classification, which accounts for 26.7% of all cases, are combat exhaustion and situational maladjustment. Character and behavior disorders accounted for 18.8% of the cases and is identified by alcoholism, drug addiction, and immaturity reactions. Accounting for 11.9% of all cases were cerebral hemorrhage and diseases of the nervous system such as meningitis, epilepsy and paralysis. Of all neuropsychiatric cases during the Korean campaign, only 11% have been evacuated to the United States.

Evacuation and Mobile Army Surgical Hospital.—While the saving of a great many lives can be attributed to the increased administration of whole blood, two other factors have also helped immeasurably—rapid air evacuation and the Mobile Army Surgical Hospital.

During the three years of the Korean campaign, both helicopters and large transport-ambulance planes have played an extremely important role. The little helicopter, capable of carrying two litter patients and one patient in a sitting position at a time, can go as far forward as a battalion aid station and at times even farther, pick up severely wounded soldiers and quickly fly them to a hospital near the front lines. Without them, a long and often fatal litter haul would be necessary.

The role of the larger aircraft is equally as important as the helicopter. They can take wounded men from field hospitals and in just a few hours make available to them all of the services of a large general hospital. Similarly, in just about two days these large ambulance-transports can fly wounded men from Korea to general hospitals near their homes in the United States. These planes, operated almost continually by the Military Air Transport Service, have carried thousands of men from the combat area to Japan and the United States.

The small Mobile Army Surgical Hospital, a post-World War II development, offers severely wounded men definitive surgery shortly after they have been hurt, often within a few minutes. Located in a division area near the front line, the hospital receives patients by helicopter and ambulance, provides them with immediate surgery, and keeps them until they can safely be evacuated further to the rear.

Originally designed to care for 60 patients at a time, many of these little field hospitals have taken care of hundreds of patients at a time. A typical unit is composed of 14 physicians, 12 nurses, 2 Medical Service Corps officers and 97 enlisted men.

It usually sets up in the field in much the same manner as a circus. In addition to its tentage, the hospital unit carries with it sufficient organic transportation so that it can move itself from place to place without help from another source. This versatile hospital can be dismantled and all of its equipment can be packed and moved from a location in less than three hours. Thirty minutes after arrival at the new location, a patient can be on an operating table undergoing major surgery and the entire hospital can be functioning less than four hours after arrival.

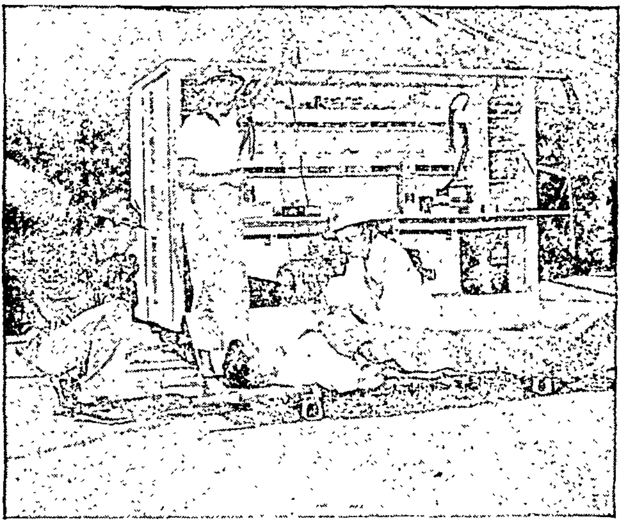
Personal.—Brig. Gen. Sam F. Seeley will soon leave his position as chief of surgery at the Walter Reed Army Medical Center in Washington, D. C., for a new assignment with the Office of the Chief Surgeon, U. S. Army, in Europe headquarters. A graduate of the University of Nebraska and the University of Minnesota Medical School, the general entered the Army in 1927.

NAVY

Personal.—Capt. C. W. Shilling (MC), U. S. N., who has just completed a tour of duty in Washington, D. C., as director of the Research Division of the Navy's Bureau of Medicine and Surgery and as special assistant for Bio Sciences in the Office of Naval Research, is now the senior medical officer at the U. S. Naval Academy, Annapolis, Md. Dr. Shilling was recently awarded the Founder's Medal of the Association of Military Surgeons of the United States for his outstanding contribution to military medicine.——Capt. O. D. Yarbough (MC), U. S. N., a qualified submarine officer, became the director of the Research Division of the Bureau of Medicine and Surgery. Prior to reporting to his present assignment he was force medical officer of the Staff of the Commander, Submarine Force, U. S. Pacific Fleet.——Capt. C. P. Phoebus (MC), U. S. N., reported as special assistant for Bio Sciences at the Office of Naval Research. A qualified naval aviator, prior to coming to his present assignment, Dr. Phoebus was head of the Medical Military Specialties Branch and Aviation Medicine Section of the Research Division of the Bureau of Medicine and Surgery——Capt. Leon D. Carson (MC), U. S. N., the director of the Aviation Medical Acceleration Laboratory at the Naval Air Development Center, Johnsville, Pa., has been appointed a visiting professor of aviation physiology, in the School of Medicine, University of Pennsylvania. He was reappointed as a lecturer in the Graduate School of Medicine in aviation physiology. At the same meeting of the Trustees, Capt. Charles F. Gell (MC), U. S. N., the deputy director of the Aviation Medical Acceleration Laboratory at the Naval Air Development Center, Johnsville, Pa., was reappointed as assistant professor in physiology in the School of Medicine and lecturer in the Graduate School of Medicine.——Dr. Howard T. Karsner, medical research adviser to the Surgeon General of the Navy, has been appointed chairman of the Advisory Medical Board of the Leonard Wood Memorial (the American Leprosy Foundation). In addition to this appointment Dr. Karsner was recently appointed as a member of the Committee on Medical Research of the American Trudeau Society, which is the medical section of the National Tuberculosis Association. Also, he was reappointed as chairman of the Committee on Pathology of the Division of Medical Sciences, National Research Council.

CIVIL DEFENSE

Civil Defense Plant Protection.—The California Civil Defense Organization has been extremely active in preparing industry in the state for enemy attack and for natural disasters. As part of its program of civil defense preparedness, the State Civil Defense Director has encouraged the installation of mobile first aid stations in industrial plants. Patterned after similar units employed with success during World War II in Europe, mobile first aid stations, like the one illustrated, have been built and installed throughout the facilities of the San Diego Consolidated Vultee Aircraft Corporation. The units are kept supplied and ready at all times for possible emergencies. They are also used during civil defense drills, as illustrated.



Mobile first aid station for protection of industrial plants.

PUBLIC HEALTH SERVICE

Water Pollution.—According to the Public Health Service, the nation's municipalities invested about 31 million dollars in water pollution control projects during the first quarter of 1953. Contracts were awarded for 119 sewage treatment projects designed to keep harmful wastes out of rivers, lakes, and other waterways. Of these, 61 are for construction of new sewage treatment plants, 48 for enlargement or improvement of existing plants, and 10 for construction of interceptor sewers.

Local Health Services.—As of July 1, 1952, there were 1,333 health organizations providing full-time local health services in the United States, according to the Public Health Service. These organizations service 1,637 counties, include 279 cities, and cover areas with a combined population of about 120 million. These figures represent an increase over the previous year of 40 organizations, 95 counties, 3 cities, and about 7 million persons with full-time local health services.

Personal.—Dr. Clifton K. Himmelsbach has been appointed assistant chief, Division of Hospitals, Public Health Service, Department of Health, Education, and Welfare. Formerly medical officer in charge of the U. S. Public Health Service Outpatient Clinic in Washington, D. C., Dr. Himmelsbach succeeds Dr. Myron D. Miller, recently assigned as medical officer in charge of the U. S. Public Health Service Hospital, Seattle. As assistant chief of the Division of Hospitals, Dr. Himmelsbach's new responsibilities involve the administration of the 16 hospitals and 125 outpatient facilities that comprise the medical care program for legal beneficiaries of the Public Health Service.

VETERANS ADMINISTRATION

Reorganization.—The reorganization of the Veterans Administration will become effective Sept. 7, 1953, according to acting administrator H. V. Stirling. The three operating officials designated were Adm. Joel T. Boone to continue as chief medical director responsible for the Department of Medicine and Surgery including special services, which was previously a separate operation; Charles G. Beck who will become acting deputy administrator for insurance with responsibility for the reorganized Department of Insurance; and E. E. Odom, now chief legal officer of the Veterans Administration with the title of solictor, who will be the acting deputy administrator for veterans' benefits. As head of the new department the latter will be responsible for all benefit programs including compensation and pension, vocational rehabilitation and education, loan guaranty, guardianship, and contact. Frank W. Kelsey, presently assistant administrator for finance, will be acting controller in the new organization. The budget, audit, accounting, reports and statistics, and policy and planning services will be under his direction. Frank R. Kerr, now assistant administrator for personnel, was designated to fill the new position of acting assistant administrator for administration. He will be in charge of the personnel, purchasing, administrative, and security services. Frank H. Dryden, presently assistant administrator for construction, supply and real estate, will be acting assistant administrator for construction. The only position for which no acting official was designated is the office of general counsel.

Personal.—Managers for the new 1,000-bed neuropsychiatric VA Hospital nearing completion in Salisbury, N. C., and for the existing 200-bed general medical and surgical VA Hospital in Saginaw, Mich., have been appointed. The new hospital in Salisbury will be managed by Dr. Louis F. Verdel, who, since 1944, has been manager of the VA Hospital in Northport, Long Island, N. Y. Dr. Edward H. Mandell, who since April, 1951, has been assistant chief of professional services at the VA Hospital in Minneapolis, becomes manager of the VA Hospital in Saginaw. In addition he will serve as chief of professional services. He succeeds Dr. Morley B. Beckett, recently transferred to the new VA Hospital in Ann Arbor, Mich.

MISCELLANEOUS

Personal.—Dr. Alan T. Waterman, director of the National Science Foundation, has announced the resignation of William A. W. Krebs Jr. as general counsel of the foundation and the appointment of William Jay Hoff, former assistant to the director of the Office of Defense Mobilization and assistant administrator of the Defense Production Administration, to the vacancy.

FOREIGN LETTERS

BRAZIL

Anesthesia in Intrathoracic Surgery.—Dr. Fernando Paulino, head surgeon of the Casa de Saúde São Miguel, published in *Revista Brasileira de Cirurgia* (24:699 [Nov.] 1952) a report on the anesthesia used in 185 consecutive intrathoracic major operations, excluding thoracoplasties and pleurotomies. This is the largest series ever reported in Rio de Janeiro in this field of surgery and does not represent specially selected operations but the total of operations of this kind performed by a specialized surgeon since the founding of that hospital. The total of 185 operations includes 56 cases of pneumonectomy and lobectomy, 32 of esophagectomy and gastrectomy, 40 of thoracolumbar sympathectomy, 25 of exploratory thoracotomy, 3 of mitral valvulotomy, 12 of operations on the esophagus for such conditions as diverticula, atresia, and anastomosis, and 17 others including surgery for mediastinal tumors, diaphragmatic hernioplasty, and pulmonary decortication.

The author discusses the problem of surgical fatality and establishes a distinction between deaths during surgery and those that occur later. A first fact is important: out of the total of 185 patients anesthetized for intrathoracic operations, none died in the operating room. All patients left the operating room in satisfactory general condition and were safely transported to bed. The author points out that the group included patients of less than a month old, a few only two to three days old, and others older than 75; some of the latter had arterial hypertension, cardiovascular lesions, and advanced neoplasms. Dr. Paulino believes that, in the field of intrathoracic surgery, it is an acceptable criterion to include as immediate surgical deaths all those that occur within 10 days after the operation. In this situation, he had eight deaths (4.3%), occurring from four hours to five days after the operation, in cases of atresia of the esophagus, cancer of the esophagus, pulmonary cancer, pulmonary abscess, and hypertension.

In the author's cases all the well-established principles of the technique of anesthesia with tracheal intubation and manually and mechanically controlled respiration were followed. Thiopental (Thionembutal) sodium, nitrous oxide, or nitrous oxide-curare were used for the induction of anesthesia and variable mixtures of ether, oxygen, curare, nitrous oxide, and meperidine (Demerol) hydrochloride for its maintenance. The anesthesia was administered with McKesson's and Heidbrink's apparatus, or with the Espiropulsator and the Pulmoflator. According to the author, the good clinical results cannot be attributed to individual anesthetics or to particular equipment, since these factors varied in different cases, with similar results. He is sure that the three main reasons for the success were (1) the great experience of the anesthetist; (2) the exact blood replacement during the operation; (3) the rigid observance of the physiological principles well established for the compensation of the rupture of the respiratory equilibrium caused by thoracotomy (controlled respiration, tracheobronchial suction, adequate oxygenation and ventilation, and blocking of inconvenient reflexes).

Clinicopathological Study of Pheochromocytoma.—Drs. José Schermann and M. Barretto Netto, of the department of endocrinology, Rio de Janeiro University, reported what seems to be, in the medical literature of Brazil, the first case of pheochromocytoma clinically diagnosed in which surgery was successfully employed and hormonal assays of the tumor obtained. The patient had a typical adrenosympathogenic syndrome with crises appearing under the effect of different kinds of stimulation such as emotions, exertion, prolonged fasting, and abdominal palpation. As complementary symptoms suggesting a chromaffin tissue tumor there were hyperthermia, increase of basal metabolism, and abnormal glycose tolerance, which disappeared after the operation. The histamine test was negative, and the tetraethylammonium chloride test caused a characteristic rise in blood pressure. Particularly helpful for the diagnosis was the perirenal x-ray picture after oxygen insufflation through the presacral space, associated to descendant pyelography, which disclosed a right suprarenal tumor causing a downward displacement of the kidney.

Surgery, with the patient under cyclopropane-curare anesthesia with tracheal intubation, permitted good access through the transpleural route and easy extraction of the tumor. A paroxysmal hypertensive attack occurred during the opening of the pleural cul-de-sac but disappeared spontaneously within a short time. Twice during the postoperative period, a low blood pressure crisis was successfully treated by intramuscular injections of Coramine (a 25% solution of nikethamide) ephedrine, blood transfusions, hydration, Adreno-cortin (an adrenal cortex extract), and strophanthin. The extirpated tumor, weighing 90 gm. and presenting a typical macroscopic aspect, showed at the histological examination characteristic alterations with staining reactions peculiar to the chromaffin tissue. The hormonal analysis of the pheochromocytoma, using von Euler and Hellner's chromatographic method, demonstrated the presence of 2.3 mg. of arterenol per gram of tissue, totaling 207 mg. for the whole tumor. The pharmacodynamic study of the patient's urine showed the presence of 1 mcg. of the hormone per milliliter. Three months after the operation the patient was found in perfect physical condition.

Fatal Hemorrhagic Syndrome in Thoracic Surgery.—Drs. E. Rocha Jr., Isaac Malogolovkin, and E. Marques Tinoco discussed recently two fatal cases of hemorrhagic syndrome, which occurred in a series of 42 intrathoracic operations performed at the Rio de Janeiro Policlinica Geral, representing an incidence of 4.76%. The two fatal accidents are attributed by the authors to a hemorrhagic fibrinolytic afibrinogenemic syndrome. By a careful analysis of the results of the preoperative examinations as well as all the information concerning the operations the authors are sure they can rule out the influence of blood transfusions as well as the possibility of transfusion accidents. Similarly, the absence of coagulability could not be related to an excess of heparin, as it can be deducted from the lack of result of the treatment with protamine sulfate and from the negative result of a later in vitro test. The authors believe that the most probable diagnosis of the cause is massive hemorrhage by afibrinogenemia. They suggest the interference of the liberation, through the lungs, of a fibrinolytic enzyme, acting as a precipitating factor, in consequence of the surgical manipulation.

ITALY

Surgical Transplants.—At the meeting of the Ionic Society of Medicine and Surgery on Dec. 14, 1952, Prof. Paolo Buonsani, the president of the society, read a paper on surgical transplants. It is impossible to replace tissue in man with tissue that is biologically more active or differs greatly histologically. There is a defense reaction by the host tissue against the graft, even against tissues that do not differ greatly although they are more likely to "take." This immunogenic or allergic reaction dooms the graft to eventual replacement by the host's tissues. The incompatibility is less pronounced in autoplastic than in heteroplastic grafts.

The ease with which an avascular transplant takes, as in the cornea and the cartilages, indicates the relative unimportance of the blood supply. In fact, when entire visceral organs are grafted by anastomosis, severe toxicosis of the host results from absorption of the products of decomposition.

The items in these letters are contributed by regular correspondents in the various foreign countries..

Considering that the histopathological process of the graft consists of an inflammatory process similar to the healing of a wound, it can be inferred that the host must first eliminate the necrotic tissue through leukocytic action and then restore the "guide-system" through the lymphocytes. The graft does not regain its neurotrophic capacity.

The former belief that gonadal grafts continue to function must be attributed to the fact that transplanted glands of internal secretion produce a transitory functional or therapeutic effect as a result of catabolic processes, but eventually they become exhausted.

Therefore, it can be said that, although tissues not markedly differentiated from the host tissue give excellent clinical results in grafting procedures, transplantation of vital organs appears difficult. In fact, in the case of arterial transplants they cannot be said to be successful. On the other hand, according to Seddon, the recuperative power of nervous tissue is astonishing.

Sciatica Due to Disk Lesions.—On March 20 Prof. Paride Stefanini, director of the University of Perugia surgical clinic, read a paper at the Rome Medical Academy on the sciatica originating from lesions of the intervertebral disks. Prof. Cesare Frugoni was chairman of the meeting. Professor Stefanini recalled that it was at the Rome Medical Academy in 1941 that he reported on the first two patients with sciatica who recovered after an operation for herniation of the disk. He emphasized that sciatica should not be considered as neuralgia or the pain of neuritis but as the clinical equivalent of a root pain. Its cause may be compression, edema, infiltration, or inflammation, but it can always be demonstrated in essential sciatica. Clinically the radicular origin is demonstrated by the typical root distribution of the spontaneous pain and the paresthesias and disturbances of sensitivity that careful examination almost always reveals in patients with lumbar sciatica. When present, the motor disturbances, which are not too frequent, have a radicular distribution also, while the electrodiagnostic examination reveals a radicular lesion.

Professor Stefanini called attention to the three characteristics of sciatica. 1. It is a disease of one or two roots that usually involves the fifth lumbar and the first sacral roots. 2. The clinical picture does not vary. 3. The patient with sciatica has or has had backaches; sciatica is related to lumbago, just as the sciatic nerve has its origin in the lumbosacral roots. This accounts for the rigidity and the classic defensive position of the trunk in persons with sciatica.

Since the clinical picture is so well defined, it seems probable that the lesion in the lumbosacral roots is constant and characteristic. The question naturally arises of whether sciatica is always due to hernia of the disk. Many authors believe it is; others think that it should be attributed to hernia of the disk only in a certain percentage of cases; others deny this principle and believe that hernia of the disk is a defense of the vertebral column in patients with sciatica. This disagreement of opinions results from the fact that herniation of the disk was not found in every case of sciatica at operation. Professor Stefanini pointed out that degeneration of the nucleus pulposus, cartilages, and annulus occurs in intervertebral disks, especially in the lower part of the vertebral column. Alterations of the intervertebral ligaments may occur in addition to herniation.

Sciatica occurs only when the degeneration is so pronounced that the nucleus pulposus herniates. To support this concept, Professor Stefanini discussed factors that cause him to attribute backache and sciatica to degeneration and hernia respectively. Vertebral pain can also originate in the disk lesion, as can acute sciatica, which can be attributed to sudden protrusions of the disk. Objections to this concept are based on the fact that a trauma is not present in all cases. If previous degeneration is assumed, however, one of the usual and small traumas of every day life would be sufficient to cause protrusion. There is a history of trauma in 50% of the patients with disk hernias, and it is always present in sciatica of sudden onset.

Professor Stefanini refuted the objections based on the negative surgical findings and emphasized the technical difficulties. As for the objection that many patients with sciatica recover with medical treatment, he said that many patients who consider themselves cured or only slightly ill are susceptible to sudden aggravations. On the other hand, even patients who have a definite hernia of the disk often improve spontaneously. These sudden improvements are understandable if it is considered that the pain results not only from compression but also from the effects of other factors (such as infection) that act on the distended root. The role of these other factors may explain why hernia of the disk may be present without pain and that many conditions, such as cold, poisonings, and infections, may erroneously appear to be the cause of sciatica.

Finally Professor Stefanini discussed the principles of selection of treatment for sciatica. Operation should not be performed immediately; in fact, most patients are benefited by medical therapy, bed rest, and physical therapy. When such treatment is not sufficient, a plaster or orthopedic back brace is advisable. In persistent cases surgical treatment should be undertaken. Professor Stefanini reports good or excellent results in about 80% of approximately 200 operations he has performed.

Society of Cardiology.—At a meeting of the Italian Society of Cardiology on March 25, Dr. Boldrini spoke on urinary excretion of riboflavin and the influence of cocarboxylase on the urinary excretion of riboflavin in cardiac decompensation. He had previously observed that administration of digitalis increases the excretion of riboflavin abruptly, while the lactacidemia and pyruremia values rise in an inverse ratio to the riboflavinuria. Since digitalis restricts urinary excretion of thiamine in congestive decompensation, Dr. Boldrini thought that probably in the presence of digitalis the phosphorus radicals with a high energy-producing power are preferably used for the phosphorylation of the thiamine. In other words, he thought that in cardiac decompensation there is also a disturbance in phosphorylation. This hypothesis is supported by the sensitivity of the high blood levels of pyruvic acid found in cardiac decompensation to cocarboxylase and not to thiamine.

To verify the influence of cocarboxylase on urinary excretion of riboflavin, he administered 100 mg. of diphosphothiamine intravenously to six patients with heart disease who were receiving digitalis. The urinary riboflavin values decreased immediately to 70% of the initial values and increased again slowly during the following days. Since this decrease has also been observed in patients with other conditions (such as infectious disease) who were receiving cocarboxylase, Dr. Boldrini believes they also had disturbances of phosphorylation that interfered with the metabolism. Thus, riboflavin that was not utilized was eliminated through the kidneys.

Focal Oropharyngeal Infection and Renal Function.—At a meeting of the Medical and Surgical Society of Pisa, Nov. 21, 1952, Drs. Fiaschi, Grassi, and Andres reported results of their studies of the effect of focal oropharyngeal infection on renal function. They used the sodium thiosulfate clearance rate to determine the rate of glomerular filtration; the sodium para-amino hippurate clearance to measure the renal blood flow and the maximal tubular excreting capacity; and the urea clearance and the endogenous creatinine clearance to measure the tubular reabsorption of water.

The studies were made on 12 patients with oropharyngeal, dental, and tonsillar infection, 7 of whom did not have impairment of the kidney function according to results of an Addis count. The other five patients had signs of acute or chronic glomerulonephritis.

In the seven patients with normal kidney function results of tests for kidney function remained normal after any procedure such as surgical drainage. In the patients with glomerulonephritis, however, any procedure involving the focus of infection was followed by a sudden decrease of glomerular filtration. The changes in the tubular function were much less noticeable. These sudden and pronounced modifications of the glomerular function and kidney circulation were not prevented or even modified by administration of drugs that have a ganglioplegic or sympathicolytic action.

International Symposium on Vitamins.—One of the important recent conventions was held at the Milan Technical Museum where all the astonishing mechanical and technical drawings of Leonardo da Vinci are housed. Luigi Einaudi, president of the Italian Republic, read the inaugural address. Among the foreign representatives were Henrik Dam, Nobel prize winner from the Polytechnic Institute of Copenhagen, W. H. Scopfer, director, University of Bern (Switzerland) Institute of Botany, Georges Mouriquand, director, University of Lyon (France) Pediatric Clinic, and Alfred Vannotti, director, University of Lausanne (Switzerland) Medical Clinic.

Prof. Sabato Vasco, director, National Institute of Nutrition, who was introduced by Professor Colonnetti, president of the National Council of Research, read a paper on the evolution of the concept of vitamins. He said that the vitamins have great biochemical importance and that the action of digestive enzymes depends on the presence of vitamins.

Dr. Aykrod reviewed the history of the discovery of vitamins. Professor Usuelli, director, University of Milan Institute of Zootechny, reported on use of vitamins in animal breeding. Professor Amantea, director, University of Rome Institute of Physiology, reported on the requirements for vitamins in the body.

On the second day, Prof. F. Cedrangolo, director, University of Naples Institute of Medical Chemistry, discussed the biosynthesis of nicotinic acid in animal tissues. He reported on numerous experiments carried out in his laboratory that show that neither tryptophan nor its various metabolites can produce nicotinic acid or pyridine in living tissues or in eggs during incubation. It appears doubtful to him that animal tissues are able to convert tryptophan into nicotinic acid without any bacterial participation.

Prof. P. Di Mattei, director, University of Rome Institute of Pharmacology, discussed the antagonism between drugs that cause avitaminosis and vitamins and the action of vitamins when particular drugs are administered.

Professor Vannotti, Lausanne, Switzerland, reported on vitamins and enzymes from the clinical point of view. The biological action of the vitamins is intimately related to their enzymatic function. Certain vitamins (B complex) differ from the others in that, when they are partially transformed in the organism (by phosphorylation) and joined to a protein, they form cellular ferments and participate as co-enzymes in the regulation of metabolism of carbohydrates, proteins, and fats. Disturbances of the function of these ferments are due to either a deficiency or too great a utilization of the corresponding vitamins or to their insufficient transformation into ferments.

Professor Schopfer, from the University of Bern, reported on antivitamins, which are specific competitive antagonists of the vitamins. Their effect consists in displacing the vitamins, thus hindering the activity of the enzymes of which the vitamins are the co-enzymes. The resultant interference with metabolic processes has repercussions greater than simple displacement: disturbances in the biosynthesis of certain acids, purines, nucleic acids, and other essential metabolic products are increased. In certain micro-organisms it can be shown that not only the specific vitamin corresponding to the utilized antivitamin is displaced but the whole vitamin balance of the organism is disturbed. The avitaminosis caused by an antivitamin is, therefore, apparently similar to that which is secondary to irradiation. While antivitamin avitaminosis does not damage the physiological genotype, avitaminosis due to irradiation does damage the genome.

The point of view presented by Schopfer has great importance. Schopfer compared the effect of antivitamins to avitaminosis due to "mutation" of the enzyme resulting from irradiation that results in cellular inability to synthesize vitamins being transmitted from generation to generation. There is no doubt that this concept will affect the interpretation of some phenomena of enzymatic "deviation" that are typical in cancer. It is known that the enzymatic alterations in cancer are always the same no matter what organ is affected, whereas each healthy organ has its own, different enzymatic system.

Prof. G. Frontali, University of Rome, read a paper on vitamin overdosage. He reported on severe cases of overdosage of vitamin D_2 (300 cases have been reported in the world literature and 17 were fatal), vitamin A (20 cases in the world literature), and vitamin B complex (pronounced toxic manifestations). He proposed that concentrated vitamin preparations be labeled with safe maximal doses and safe intervals between doses. Greater than usual doses should be supplied only on medical prescription.

Henrik Dam, Nobel prize winner, discussed vitamins and antivitamins in blood coagulation. Since 1936 the formation of prothrombin in the body has been known to depend on the supply of vitamin K, and since 1941 to be inhibited by bishydroxycoumarin (Dicumarol). Since 1943 a series of new coagulation factors has been discovered, making modification of the theory of blood coagulation necessary.

Vitamin K and bishydroxycoumarin were originally believed to be simple antagonists. The following observations, however, were incompatible with such a view: Under suitable conditions mixtures of bishydroxycoumarin plasma and plasma deficient in vitamin K coagulate faster than either of the two plasmas alone. In addition, methylnaphthoquinone is almost unable to compensate for the anticoagulation effect of bishydroxycoumarin. The latest theories of blood coagulation and the recent observation that vitamin K_1 compensates efficiently for the action of bishydroxycoumarin have given more ground for the theory of competitive antagonism. Recently it was shown that vitamin K_1 acts much faster than methylnaphthoquinone in simple vitamin K deficiency, and this observation is probably related to the superiority of vitamin K_1 in counteracting the anticoagulant effect of bishydroxycoumarin.

Other papers were read by Professors Chini, from the University of Bari, and Sotgiu, from the University of Rome. Four hundred persons participated in the convention. Among the Americans present was Dr. Clive M. McCay (State College of Agriculture, Cornell University, Ithaca, N. Y.), who read a paper on the evolution of vitamin needs from insects to man.

LONDON

The Queen at the Royal College of Surgeons.—On May 8 the Queen attended a ceremony at the Royal College of Surgeons in London at which she laid a stone containing a casket in which was a Calender of the College and other documents. The president of the college, Sir Cecil Wakeley, welcomed the Queen, and the Bishop of London dedicated the memorial stone. Work on the College of Surgical Sciences (endowed by Lord Nuffield) is to start shortly. The new Great Hall will seat 700 persons and provide a center for surgical congresses, lectures, or social occasions. Above it will be three floors of museums, and departments of anesthesia and dentistry will be provided.

Prescribing Under the National Health Service.—During the first year of the National Health Service, family physicians' prescriptions cost 35 million pounds. This year it is estimated that the cost to the taxpayer will be some 10 million pounds more. Nevertheless, in the summarized accounts of the National Health Services the Auditor-General states that only 282 family physicians were reported for apparent excessive prescribing. All but 11 reduced their prescriptions after a warning "without detriment to the treatment of patients." Now the *British Medical Journal* (1:1040 [May 9] 1953) points out that no departure must be made from recognition of the fact that the physician is the sole arbiter of what is best for his patient.

The Medical Defendant.—A leading article in the *Lancet* (1:887 [May 2] 1953) under this heading draws attention to the fact that medical practitioners are apparently being made the target in increasing numbers of claims based on allegations of negligence. Among the reasons put forward is that it may be an inevitable feature of a health service in which members of hospital staffs are known to be paid. Of course, there is another national service—the free legal aid scheme—in which the plaintiff has access to absolutely free legal aid and advice and loses nothing. Whatever the reason, *Lancet* points out quite correctly that the practitioner, as the menace of writs for damages grows, may be inclined to play for safety when a bold course might help the patient more. The old adage "better a living problem than a dead certainty" may yet become reversed.

Immunization in Diphtheria Outbreak.—In the *British Medical Journal* (1:964 [May 2] 1953) Drs. Lycett and George describe an outbreak of diphtheria that occurred in Staffordshire in 1951. Of 108 patients, 6 died. It was found that the outbreak coincided with a low level of immunity among the child population and the incidence fell after mass immunization, which was accepted willingly by the public confronted with an outbreak of diphtheria. In the 22 severe cases of diphtheria, only 7 patients had been immunized, although none had received a reinforcement dose, and of the patients who died none had been immunized.

The New Year Honors.—The list of medical men awarded honors in the New Year Honour List includes names known all over the world and also names known only in Great Britain. All have deserved this honor, and the public recognition is gratifying to the profession to which they belong. An outstanding man of science and surgeon, Prof. Wilder Penfield enters the Order of Merit, limited in numbers to 24, the two other medical members being Dr. E. D. Adrian and Sir Henry Dale. Professor Penfield was born in America and subsequently became a naturalized Canadian citizen. Before and after the 1914-1918 war he was a Rhodes Scholar at Oxford, where he studied under Sir Charles Sherrington. The titles of his principal publications, "Cytology and Cellular Pathology of the Nervous System," "Epilepsy and Cerebral Localization" (with T. C. Erickson), and "The Cerebral Cortex of Man," show the nature of his contributions to medical science and neurosurgery.

Mount Everest Expedition.—A radical change in the footwear of this year's British Mount Everest expedition is announced. Instead of the familiar heavily nailed, leather climbing boots, the assault parties will wear a much lighter boot with soles of artificial rubber and glacé kid uppers. The boots are insulated inside with a layer of kapok nearly an inch thick. It is pointed out that lightness and warmth are far more important qualities than durability and water-resistance for the Everest assault. The boots, which have already been tried in the Alps, will be required only for a few days' use, and at the temperatures high on Everest water is unlikely to be encountered.

Patients' Charter Seeks Later Hospital Waking.—Later waking is one of many recommendations made in a charter for hospital patients published recently. It is contained in a report to Mr. Macleod, Minister of Health, by the Central Health Services Council. This is a standing body that advises the minister on the National Health Service. Under a lay chairman, Mr. F. Messer, Socialist M.P. for Tottenham, it is composed of representatives of every branch of medicine. "One of the strongest complaints from patients," the report says, "is that the waking hour, apparently without reason, is too early in the morning."

To remedy this, some tasks traditionally performed before physicians' rounds should be done during or after them. "No patients apart from those receiving special treatment should have to be awakened before 6 a. m. and later if possible." Meals should be punctual and suitably spaced. It was not unknown for patients to have nothing between 6:30 p. m. and 8:30 next morning. The unwritten rule that meals should not be served while a physician is visiting a patient should be abolished. There should be a wide choice of food, with both small helpings and second helpings available. A teapot for each patient, with separate milk and sugar, should be the aim.

Hospitals should remember that patients have personalities of their own, and are not merely cases. Since the creation of the National Health Service they have been less willing to accept instructions without question and more responsive to sensible explanations and requests for help. "Medical and nursing staff and administrators should not maintain the attitude of 'theirs not to reason why' which was occasionally adopted towards those dependent on charity or the rates." Voluntary work has a permanent and important place in National Health Service hospitals. "We are glad to see how widely this is recognized."

British Medical Association.—The British Medical Association has this year raised its annual subscription to six guineas ($17.64). In view of what is regarded as the usual effect of such an action on the membership of the association, it is interesting to note the effect. Every year there is a certain number of resignations, which usually fluctuates between 300 and 500; this year it is just over 1,000. But since Jan. 1, 1953, 480 new members have joined, compared with 270 in the same period the previous year.

Physicians Divided Over Practices.—The General Medical Services Committee, which negotiates on fees and conditions for the 20,000 family physicians in the National Health Service, has decided against asking for restoration of the right to buy and sell the good will of practices. Many physicians, notably the 3,000 in the Fellowship for Freedom in Medicine, of which Lord Horder is chairman, believe restoration is essential if defects in the service are to be remedied. Some would make it optional. The committee regards the proposal as impracticable. It will declare itself as not in favor of action along these lines. There is strong feeling on both sides on this issue.

Psittacosis in Britain.—It has long been known that human beings are susceptible to an infectious disease of parrots called psittacosis. The disease is caused by infection with a virus, and in addition to birds of the psittacine group in which parrots, cockatoos, and budgereegahs are included canaries, pigeons, domestic fowls, and ducks all harbor these organisms and have been responsible for infection in man. In 1930, after a serious outbreak of psittacosis, with many deaths, a complete ban was imposed on the importing of parrots into this country. The ban was raised in December, 1951, and it is likely that a number of infected parrots have since been introduced. Indeed, the death on Dec. 4, 1952, of the manager of a pets' corner in a department store was shown at the inquest at Birmingham to be caused by psittacosis acquired from infected parrots in a consignment of birds that he had received in November.

TURKEY

Ascarides Perforated Intestines.—In volume 10 of *Bursa Klinik* Dr. Feridun Timur, chief of the Kutahya General Hospital medical department, reports a case of perforation of the intestines caused by ascarides with resultant peritonitis. The patient, a 30-year-old farmer, had suffered acidity of the stomach, profuse salivation at night, and itching of the nose for five years. Twelve days prior to admission to the hospital the patient felt an abdominal pain that gradually increased; constipation, nausea, and vomiting began, and the pain in the abdomen became unbearable. On admission to the hospital the patient was in a coma and had a temperature of 38.5 C, a pulse rate of 130, hallow cheeks, and a greatly distended abdomen. The blood cell count revealed 3,400,000 red blood cells and 6,000 white blood cells. The differential count revealed 70% polymorphonuclear cells, 21% lymphocytes, 5% transitionals, and 4% monocytes; the sedimentation rate was 32 mm. after one hour; and urinalysis did not reveal anything abnormal. Laparotomy under thiopental (Pentothal) sodium anesthesia was performed by hospital chief surgeon Dr. Osman Dirim. The abdominal cavity revealed seropurulent liquid and at the end of the ileum, about 50 cm. above the ileocecal valve, a 5 mm. perforation. Other than intestinal hyperemia there were no pathogenic conditions of the intestines. One Ascarid micro-organism was about to pass through the perforation into the peritoneum where several more ascarides were found. Palpation revealed the presence of ascardes in the intestines, but the intestinal passage was free. The abdominal cavity liquid did not reveal ascarides eggs. The intestinal perforation was closed with nonaborbable surgical suture, and a large tube was inserted into the abdomen. Recovery, after 25 days, was uneventful.

Tuberculosis Among Primary School Children.—In *Bursa Klinik*, volume 10, Dr. Neshati Üster, chief of the tuberculosis hospital, his associate Dr. Reha Zeybeker, and Dr. Celil Uygun have published the results of their five year investigation concerning BCG prophylaxis and tuberculosis among primary school children of Bursa City. Twenty-eight schools with 8,800 children were investigated. Tuberculin tests resulted in 21.6% to 61.4% positive reactions. The first grade, 6-year-old children had positive Pirquet reactions in 21.6% of the cases, the 7-year-olds 27.2%, the 8-year-olds 31.4%, the 9-year-olds 37.1%, the 10-year-olds 41.5%, the 11-year-olds 43.2%, the 12-year-olds 49.8%, the 13-year-olds 55.3%, the 14-year-olds 61.4%, and the 15-year-olds 60%. Of 5,139 boys 39.5% had positive Pirquet reactions, and of 3,661 girls 37.5% had positive reactions. According to the grades, positive reactions were found as follows:

Grade	No. of Examinations	Percentage of Positive Reactions
First	2,717	21.8
Second	2,106	31.2
Third	1,707	41.4
Fourth	1,325	46.6
Fifth	915	48.0

Of 395 girls given radiographic and clinical examinations 14 (3.5%) had active tuberculosis and 9 (2.3%) had old lesions; of 487 boys 16 (3.3%) had active tuberculosis and 6 (1.25%) had old lesions. Living standards of these children were excellent in two, good in four, fair in nine, poor in six, and very poor in nine. Tuberculosis infection is high among primary school children of Bursa City. At the 11th National Medical Congress, Prof. Nusret Karasu, of the department of phthisiology at Ankara University, reported that tuberculosis infection among primary school children in Turkey is 1.25 to 4.85%.

Antibiotics in Ophthalmology.—In *Göz Klinigi*, the Istanbul periodical for ophthalmology, volume 11, Dr. Nuri Fehmi Ayberk, medical director of the Istanbul-Haydar Pasha General Hospital and chief of the department of ophthalmology, reported his observations concerning antibiotics, anticoagulants, sulfonamides, cortisone, and tissue therapy in ophthalmology. Very good results have been obtained with streptomycin. While a 28-year-old man was under treatment for lung tuberculosis at a sanatorium a solitary tuberculum, the size of a pea, developed in his left eye. The patient was given 20 gm. of streptomycin, and the tuberculum gradually decreased and completely disappeared after a month. Tuberculous meningitis was thus forestalled. In a 30-year-old woman who had previously had spondylitis a tumor developed, the size of an almond, over the bulbar conjunctiva of the left eye. Biopsy revealed uveal lesions and the origin of the tumor to be tuberculosis. The patient was given 15 gm. of streptomycin, and the tumor decreased.

During the trachoma campaign work in the southeastern provinces excellent results were obtained with oxytetracycline (Terramycin). Subjective and objective amelioration resulted in from five to six days in patients with acute and complicated trachoma. Secondary infections, pain, and prolific aqueous humor decreased, and follicular hypertrophy of the conjunctiva diminished, but the trachoma virus did not completely disappear.

In 20 patients excellent results have been obtained with cortisone. A 19-year-old woman had parenchymatous keratitis in the left eye and vision of 1/10; her Wassermann and Kahn tests gave 3+ reactions. The patient was given 1 drop of a 1% cortisone solution three times a day for 10 days, the keratitis disappeared, and vision reverted to 8/10. A 28-year-old man had parenchymatous keratitis in the right eye, vision of 1/10, and a Wassermann test reaction of 3+. After 10 days of therapy with a 1% cortisone solution of one drop three times a day, the corneal infiltration subsided and vision became 5/10. This therapy in both patients was followed by penicillin and bismuth therapy. A 26-year-old man with iritis of undetermined origin in both eyes and negative Pirquet and Wassermann reactions recovered completely after 10 days of cortisone therapy; his vision became 9/10. A 47-year-old woman had subacute hypertensive iritis and lesions in both eyes; her right eye vision was 1/20 and her left eye 5/10. After 15 days of cortisone therapy vision of the right eye was 2/10 and that of the left eye was normal.

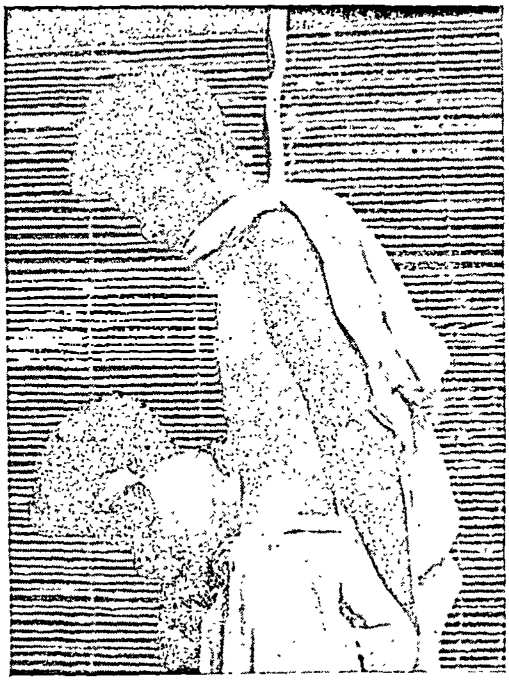
In purulent cases very good results have been obtained with penicillin. Of his many such cases Dr. Ayberk cites two. A 14-year-old boy had a furuncle of 15 days' duration over the brow of the left eye, edema then occurred. On admission to the hospital the boy was unconscious, at times he became excited, and he had a temperature of 40 C. The left eyelid and left side of the face were swollen and inflamed; examination revealed chemotic bulbar conjunctiva and exophthalmos of the left eye; the cerebrospinal fluid was cloudy and the pressure was 50 mm. of water; the Pandy test reaction was 4+, and the albumin and cells had increased. A diagnosis of cavernous sinus thrombophlebitis was made. The patient was given 800,000 units of penicillin for five days. The temperature reverted to normal; the patient's general condition improved; and infiltration, inflammation, and edema completely subsided. A 25-year-old woman had a severe headache accompanied by loss of vision in both eyes 20 days prior to admission to the hospital. Clinical and laboratory investigations revealed an optochiasmatic arachnoid. The pupils of both eyes were edematous. The patient, refusing an operation, was given 1 million units of penicillin for 10 days, with the result that the patient, who on admission could discern movement of fingers only at 10 cm., had attained a vision of 6/10, and the patient insisted on being discharged. When she returned three months later vision had reverted to its former low level. The patient again refused surgical intervention. There was no chiasmatic inflammation, but the optic nerve had become atrophic; so the second series of penicillin therapy did not benefit the patient. Penicillin has proved to be a valuable adjunct in the therapy of ophthalmologic diseases. Formerly purulent infections resulted in blindness in 15 to 20%, but the sulfonamides and penicillin have reduced it to 0.5%.

Fifteen patients with hypertension were given heparin or bishydroxycoumarin therapy. Dr. Ayberk cites the following cases: A 40-year-old woman with hypertension of 19/11 suddenly lost vision in the left eye five days prior to admission. Examination revealed thromboangiitis obliterans of the venae centralis retinae. The patient was given heparin, 150 mg. intravenously, daily for one week. Vision soon improved. After 15 days the patient attained a vision of 7/10. A 48-year-old bookbinder, while at work, suddenly lost complete vision in the right eye. Examination at the hospital a few hours later revealed hypertension of 20/12 and thromboangiitis obliterans of the venae centralis retinae in the right eye, he could see the movements of fingers a few centimeters away only. The patient was given heparin, 100 mg. intravenously. On the sixth day the patient had 6/10 vision. A 63-year-old patient with the same diagnosis and 19/10 hypertension was given 100 mg. of heparin intravenously for six days and attained a vision of 6/10. Formerly such patients were doomed to blindness. With anticoagulants, antibiotics, sulfonamides, cortisone, and tissue therapy it can now be forestalled. More than 30 patients, men and woman, 20 to 40 years old, who had retinitis pigmentosa, many of whom had night blindness, and who had vision of 1/10 to 1/50, were given placental grafts and had their vision restored to from 4/10 to 9/10. Patients who had retinopathy also benefited greatly by placental graft therapy.

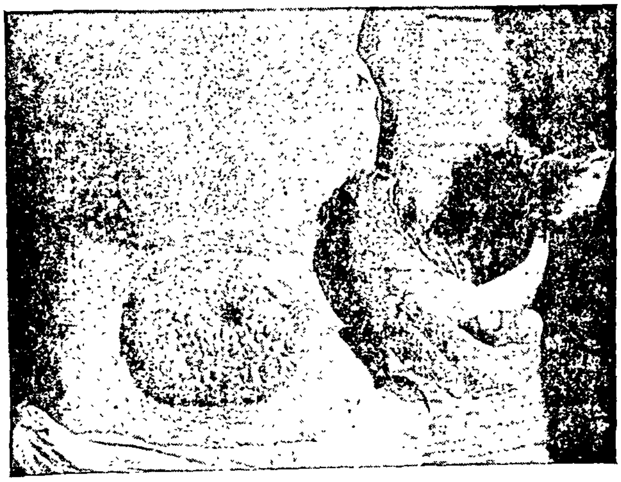
CORRESPONDENCE

HOME TREATMENT

To the Editor:—One sees some unusual and amusing things in India. One afternoon a 32-year-old Caucasian (East Indian) man walked into the Giffard Mission Hospital. The mouth of a brass pot (a chimboo) was very firmly fixed to his anterior abdominal wall; in fact, a portion of the wall was inside the pot.



The patient had had a stomach-ache and had asked a neighbor's advice as to treatment. The neighbor advised that he take a chimboo (a round, 6-inch, brass pot with a 2-inch mouth), fill it half full of fresh cow dung, heat this well, and then put the mouth of the pot against his abdomen where the pain was. This, the neighbor said, would draw out the pain.



This sounded sensible to the man, so he proceeded to do it. After the pot had been in place for an hour or so, he tried to remove it, but it would not come off. He pulled; some of his friends pulled; but still the pot would not come off. After some thought they came to the conclusion that a vacuum inside the pot was holding it so tightly in place; therefore, if they went to the goldsmith and had him punch a hole in the bottom of the pot, the vacuum would be broken and the pot would surely come off. The goldsmith punched quite a liberal hole in the bottom of the pot, but still it would not come off.

The group then decided that the man should go to the Giffard Mission Hospital. A not-too-serious consultation was held, and the conclusion was reached that we should operate. We borrowed a pair of side-cutting pliers from the business manager and then cut away the pot. The appearance of the abdomen after removal of the pot can be seen in the second illustration. The paraumbilical area was edematous and greatly thickened. When the patient was trying to pull it out through the narrow neck of the pot it was the same as trying to pull a mushroom through a wedding ring. The abdominal wall was badly burned (second degree) from the hot contents of the pot. The patient stayed in the hospital for 10 days while the area healed. During that time he did not complain of abdominal pain so we assume that his home treatment was quite effective.

John B. Oliver, M.D.
Giffard Mission Hospital
Nuzvid, Kirshna Dist., South India.

HYDROCORTISONE (COMPOUND F) FREE ALCOHOL OINTMENT

To the Editor:—In a recent article in The Journal (151:468 [Feb. 7] 1953), we reported that the topical application of hydrocortisone acetate ointment was of value in the treatment of particular diseases of the skin. Our conclusions were drawn after comparing the effects of hydrocortisone acetate in various ointments applied to the affected areas of one side of the body with the effects of the respective ointment base, without hydrocortisone acetate, applied as a control to symmetrically situated affected sites. Observations on 62 patients were included in our first report.

Because oral administration of the free alcohol is more effective than administration of hydrocortisone acetate, we thought it important that ointments incorporating the free alcohol be compared with ointments containing the acetate. The clinical evaluation of the therapeutic effectiveness of the hydrocortisone free alcohol ointment was accomplished by comparing it with the hydrocortisone acetate ointment (incorporated in the same base and in equal concentration) used on the contralateral affected sites of the same patient. Forty patients with various dermatoses were studied. In 17, the hydrocortisone free alcohol ointment proved to be slightly more beneficial than the hydrocortisone acetate ointment. In 18, the hydrocortisone free alcohol and the hydrocortisone acetate ointments were of equal benefit. In the remaining five, the response was slightly better to the hydrocortisone acetate than to the free alcohol ointment. Our comparisons indicate that the clinical benefits from the topical use of ointments containing hydrocortisone free alcohol in selected dermatoses are, to say the very least, equal to those obtained from the use of hydrocortisone acetate ointments. This may be of practical significance if hydrocortisone free alcohol becomes available.

Marion B. Sulzberger, M.D.
Victor H. Witten, M.D.
999 Fifth Ave.
New York 28.
C. Conrad Smith, M.D.
Augusta, Ga.

COUNCIL ON MEDICAL SERVICE

The Council on Medical Service has prepared the following review of the Research Council's study because of the widespread interest in data concerning prolonged illness.

SURVEY OF PROLONGED NONOCCUPATIONAL ILLNESS BY RESEARCH COUNCIL FOR ECONOMIC SECURITY

This study is based on the hypothesis, as set forth by the Research Council for Economic Security, Chicago, that whenever and wherever illness strikes, it is costly.[1] When the illness is serious and endures for months or, for that matter, several weeks, it can be catastrophic economically for the person and his family. How frequently such prolonged illnesses occur, how many people are affected, how great the financial cost is, and how well the cost is being met are part of the data that are not available. Nevertheless, the presumed frequency and extent of prolonged illness have been and are being used in arguments both for and against such proposals as the extension of employee benefit plans, compulsory sickness compensation, and national health insurance. Facts are essential for the discussion and development of these programs and for the consideration of alternatives.

This is the first of several surveys that the research council has under consideration, and it will be confined to prolonged nonoccupational illnesses among employed persons. The council has as its ultimate expectancy comparable studies of related areas, such as dependents, the aged, and the self-employed. The current study covers a vital segment of the population, namely, the wage earner.

The objective of this survey is to establish ". . . the relation of the incidence and duration of prolonged illness to: (1) the different occupational groups; (2) the different income groups; (3) age; (4) sex; (5) the various types of employee benefit plans and the coverages or services available under these plans; (6) the medical facilities and health services within the employing establishment; (7) the availability and use of medical facilities in the community."

BASIS OF STUDY

This study is confined to all employed persons with so-called "prolonged illness," i. e., nonoccupational disabilities (sickness and accidents) that cause absences from work for more than four weeks. Sickness within the meaning of this study is defined as both nonoccupational illnesses and injuries not covered under workmen's compensation; normal pregnancy cases are not included. Any abnormality or complication that requires special medical care and absence from employment will be treated as an illness and will be included in this survey.

When completed, the study will cover the experiences of 400,000 employees, or 1% of all private nonagricultural employment (total—39,404,000).[2] Quotas have been assigned to each of the nine census regions, including metropolitan, urban, and semirural communities, and to industries classified as (1) mining, (2) construction, (3) manufacturing, (4) transportation and public utilities, (5) trade, (6) finance, and (7) service. Occupational classifications include (1) managerial and supervisory, (2) clerical, sales and kindred workers, (3) skilled, and (4) semiskilled and unskilled.

FACT-FINDING PROCEDURES AND EXHIBITS

This survey is a continuous study, "recording experience at the time an illness is terminated, during the course of a 12 month period. Negotiations must be carried on separately with each participating company to arrange for the installation of the study, the setting up of the procedures and for the training of personnel."

Incident to the survey requirements that data are to be assembled on a current basis and that a running record is to be kept for 12 months, four separate work sheets have been set up and identified as schedules A, B, C, and D. The first three schedules are prepared from company records, and the fourth is designed as an employee questionnaire.

Schedule A is a quarterly report to the council and includes (1) number of employees, (2) number of employees absent because of illness, (3) breakdown of absences because of illness, and (4) number of days absent. Schedule B is a report that will be made only once giving details of the medical care program, such as (1) medical personnel, (2) diagnostic aids, (3) medical service, and (4) outside arrangements including any formal arrangements that either supplement or are in lieu of company's own facilities and that are being used for the care of nonoccupational illnesses of employees, and details of the employee benefit plan provisions for (1) hospitalization, (2) surgical care, (3) medical care, (4) sickness compensation, and (5) paid sick leave. Schedule C is a quarterly report to council and includes (1) personal data, (2) a chronological record of the illness, (3) nature of the illness or accident, and (4) medical costs and group plan benefits. Schedule D is an employee questionnaire that covers information not usually available in company or claim record files. Such data are medical insurance in addition to the group plan at the company, source of funds to help pay for cost of illness, and type and cost of medical aid, including physician, nurse, prescriptions, and special equipment.

The scope of this survey anticipates the accumulation of a large volume of case material and a vast number of statistical correlations. The final result should, however, establish a valid base on which to evaluate the medical, social, and economic implications from prolonged nonoccupational illnesses among employed persons.

FIRST PROGRESS REPORT

The council reports that as of the middle of May, 1953, arrangements were completed for reports to be submitted covering the experience of some 202,000 employees (approximately 50% of the total quota).

The following statistical results are based on assembled data covering a continuous three month period for a total of 39,675 employees. Whether or not ratios resulting from statistical correlations of one-tenth of the total number to be studied are sufficiently valid to establish trends is a question that must be deferred. This small group does not represent a cross section of the full sample, and many of the resulting ratios may change completely when the experiences are recorded for a full 12 month period and when the data for the full sample of 400,000 persons are assembled.

A review of the number of absences showed that there were nine prolonged absences per 1,000 employees: If this were projected for the 12 month period, there would be 36 prolonged absences in that period. The council suggests that preliminary investigations indicate a projection of 40 or more prolonged absences per year. Whereas it was expected that the absenteeism rate among women would be considerably higher than among men, there were no marked differences in the ratios; in fact, the absentee incidence among women was slightly lower. Although the absenteeism rate for women may be higher for illnesses of short duration, it apparently may not be so with respect to prolonged illnesses. There was a wide variation between the absences of male supervisors and those

---

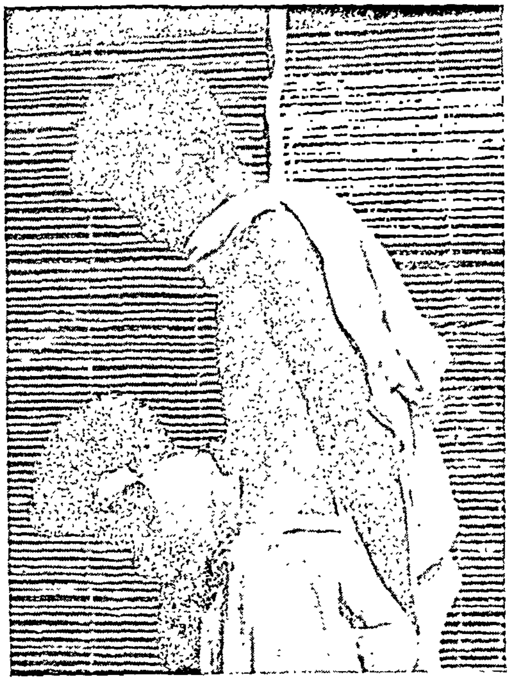
[1] Survey of Prolonged Non-Occupational Illness Among Employed Persons; Nature, Extent and Economic Aspects, Publication No. 90, and Prolonged Non-Occupational Illness; First Progress Report, Publication No. 95, Chicago, Research Council for Economic Security, 1952.

[2] Employees in Non-Agricultural Establishments, January, 1952, United States Department of Labor, Bureau of Labor Statistics, United States Government Printing Office, 1952. Government establishments have been excluded from total.

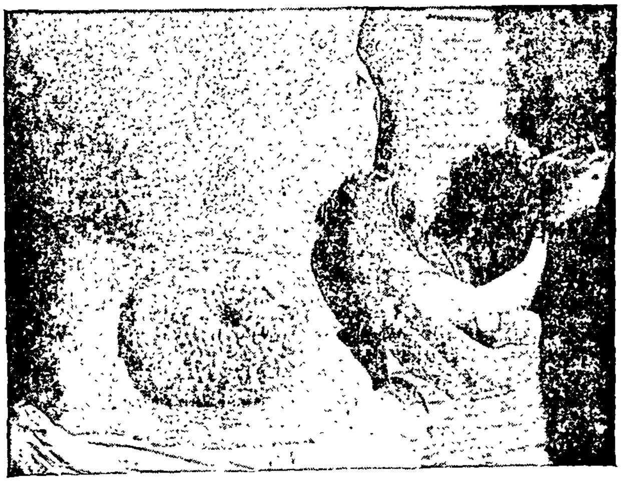
CORRESPONDENCE

HOME TREATMENT

To the Editor:—One sees some unusual and amusing things in India. One afternoon a 32-year-old Caucasian (East Indian) man walked into the Giffard Mission Hospital. The mouth of a brass pot (a chimboo) was very firmly fixed to his anterior abdominal wall; in fact, a portion of the wall was inside the pot.



The patient had had a stomach-ache and had asked a neighbor's advice as to treatment. The neighbor advised that he take a chimboo (a round, 6-inch, brass pot with a 2-inch mouth), fill it half full of fresh cow dung, heat this well, and then put the mouth of the pot against his abdomen where the pain was. This, the neighbor said, would draw out the pain.



This sounded sensible to the man, so he proceeded to do it. After the pot had been in place for an hour or so, he tried to remove it, but it would not come off. He pulled; some of his friends pulled; but still the pot would not come off. After some thought they came to the conclusion that a vacuum inside the pot was holding it so tightly in place; therefore, if they went to the goldsmith and had him punch a hole in the bottom of the pot, the vacuum would be broken and the pot would surely come off. The goldsmith punched quite a liberal hole in the bottom of the pot, but still it would not come off.

The group then decided that the man should go to the Giffard Mission Hospital. A not-too-serious consultation was held, and the conclusion was reached that we should operate. We borrowed a pair of side-cutting pliers from the business manager and then cut away the pot. The appearance of the abdomen after removal of the pot can be seen in the second illustration. The paraumbilical area was edematous and greatly thickened. When the patient was trying to pull it out through the narrow neck of the pot it was the same as trying to pull a mushroom through a wedding ring. The abdominal wall was badly burned (second degree) from the hot contents of the pot. The patient stayed in the hospital for 10 days while the area healed. During that time he did not complain of abdominal pain so we assume that his home treatment was quite effective.

John B. Oliver, M.D.
Giffard Mission Hospital
Nuzvid, Kirshna Dist., South India.

HYDROCORTISONE (COMPOUND F) FREE ALCOHOL OINTMENT

To the Editor:—In a recent article in The Journal (151:468 [Feb. 7] 1953), we reported that the topical application of hydrocortisone acetate ointment was of value in the treatment of particular diseases of the skin. Our conclusions were drawn after comparing the effects of hydrocortisone acetate in various ointments applied to the affected areas of one side of the body with the effects of the respective ointment base, without hydrocortisone acetate, applied as a control to symmetrically situated affected sites. Observations on 62 patients were included in our first report.

Because oral administration of the free alcohol is more effective than administration of hydrocortisone acetate, we thought it important that ointments incorporating the free alcohol be compared with ointments containing the acetate. The clinical evaluation of the therapeutic effectiveness of the hydrocortisone free alcohol ointment was accomplished by comparing it with the hydrocortisone acetate ointment (incorporated in the same base and in equal concentration) used on the contralateral affected sites of the same patient. Forty patients with various dermatoses were studied. In 17, the hydrocortisone free alcohol ointment proved to be slightly more beneficial than the hydrocortisone acetate ointment. In 18, the hydrocortisone free alcohol and the hydrocortisone acetate ointments were of equal benefit. In the remaining five, the response was slightly better to the hydrocortisone acetate than to the free alcohol ointment. Our comparisons indicate that the clinical benefits from the topical use of ointments containing hydrocortisone free alcohol in selected dermatoses are, to say the very least, equal to those obtained from the use of hydrocortisone acetate ointments. This may be of practical significance if hydrocortisone free alcohol becomes available.

Marion B. Sulzberger, M.D.
Victor H. Witten, M.D.
999 Fifth Ave.
New York 28.
C. Conrad Smith, M.D.
Augusta, Ga.

COUNCIL ON MEDICAL SERVICE

The Council on Medical Service has prepared the following review of the Research Council's study because of the widespread interest in data concerning prolonged illness.

SURVEY OF PROLONGED NONOCCUPATIONAL ILLNESS BY RESEARCH COUNCIL FOR ECONOMIC SECURITY

This study is based on the hypothesis, as set forth by the Research Council for Economic Security, Chicago, that whenever and wherever illness strikes, it is costly.[1] When the illness is serious and endures for months or, for that matter, several weeks, it can be catastrophic economically for the person and his family. How frequently such prolonged illnesses occur, how many people are affected, how great the financial cost is, and how well the cost is being met are part of the data that are not available. Nevertheless, the presumed frequency and extent of prolonged illness have been and are being used in arguments both for and against such proposals as the extension of employee benefit plans, compulsory sickness compensation, and national health insurance. Facts are essential for the discussion and development of these programs and for the consideration of alternatives.

This is the first of several surveys that the research council has under consideration, and it will be confined to prolonged nonoccupational illnesses among employed persons. The council has as its ultimate expectancy comparable studies of related areas, such as dependents, the aged, and the self-employed. The current study covers a vital segment of the population, namely, the wage earner.

The objective of this survey is to establish ". . . the relation of the incidence and duration of prolonged illness to: (1) the different occupational groups; (2) the different income groups; (3) age; (4) sex; (5) the various types of employee benefit plans and the coverages or services available under these plans; (6) the medical facilities and health services within the employing establishment; (7) the availability and use of medical facilities in the community."

BASIS OF STUDY

This study is confined to all employed persons with so-called "prolonged illness," i. e., nonoccupational disabilities (sickness and accidents) that cause absences from work for more than four weeks. Sickness within the meaning of this study is defined as both nonoccupational illnesses and injuries not covered under workmen's compensation; normal pregnancy cases are not included. Any abnormality or complication that requires special medical care and absence from employment will be treated as an illness and will be included in this survey.

When completed, the study will cover the experiences of 400,000 employees, or 1% of all private nonagricultural employment (total—39,404,000).[2] Quotas have been assigned to each of the nine census regions, including metropolitan, urban, and semirural communities, and to industries classified as (1) mining, (2) construction, (3) manufacturing, (4) transportation and public utilities, (5) trade, (6) finance, and (7) service. Occupational classifications include (1) managerial and supervisory, (2) clerical, sales and kindred workers, (3) skilled, and (4) semiskilled and unskilled.

FACT-FINDING PROCEDURES AND EXHIBITS

This survey is a continuous study, "recording experience at the time an illness is terminated, during the course of a 12 month period. Negotiations must be carried on separately with each participating company to arrange for the installation of the study, the setting up of the procedures and for the training of personnel."

Incident to the survey requirements that data are to be assembled on a current basis and that a running record is to be kept for 12 months, four separate work sheets have been set up and identified as schedules A, B, C, and D. The first three schedules are prepared from company records, and the fourth is designed as an employee questionnaire.

Schedule A is a quarterly report to the council and includes (1) number of employees, (2) number of employees absent because of illness, (3) breakdown of absences because of illness, and (4) number of days absent. Schedule B is a report that will be made only once giving details of the medical care program, such as (1) medical personnel, (2) diagnostic aids, (3) medical service, and (4) outside arrangements including any formal arrangements that either supplement or are in lieu of company's own facilities and that are being used for the care of nonoccupational illnesses of employees, and details of the employee benefit plan provisions for (1) hospitalization, (2) surgical care, (3) medical care, (4) sickness compensation, and (5) paid sick leave. Schedule C is a quarterly report to council and includes (1) personal data, (2) a chronological record of the illness, (3) nature of the illness or accident, and (4) medical costs and group plan benefits. Schedule D is an employee questionnaire that covers information not usually available in company or claim record files. Such data are medical insurance in addition to the group plan at the company, source of funds to help pay for cost of illness, and type and cost of medical aid, including physician, nurse, prescriptions, and special equipment.

The scope of this survey anticipates the accumulation of a large volume of case material and a vast number of statistical correlations. The final result should, however, establish a valid base on which to evaluate the medical, social, and economic implications from prolonged nonoccupational illnesses among employed persons.

FIRST PROGRESS REPORT

The council reports that as of the middle of May, 1953, arrangements were completed for reports to be submitted covering the experience of some 202,000 employees (approximately 50% of the total quota).

The following statistical results are based on assembled data covering a continuous three month period for a total of 39,675 employees. Whether or not ratios resulting from statistical correlations of one-tenth of the total number to be studied are sufficiently valid to establish trends is a question that must be deferred. This small group does not represent a cross section of the full sample, and many of the resulting ratios may change completely when the experiences are recorded for a full 12 month period and when the data for the full sample of 400,000 persons are assembled.

A review of the number of absences showed that there were nine prolonged absences per 1,000 employees: If this were projected for the 12 month period, there would be 36 prolonged absences in that period. The council suggests that preliminary investigations indicate a projection of 40 or more prolonged absences per year. Whereas it was expected that the absenteeism rate among women would be considerably higher than among men, there were no marked differences in the ratios; in fact, the absentee incidence among women was slightly lower. Although the absenteeism rate for women may be higher for illnesses of short duration, it apparently may not be so with respect to prolonged illnesses. There was a wide variation between the absences of male supervisors and those of male skilled workers, although there is some doubt as to the validity of the figures for supervisors. The number of prolonged absences for the supervisors is under "2" while for the skilled worker it was "15." These figures suggest that the skilled worker group may constitute a special problem area and that a special investigation may be necessary. "The nine absences represented a loss of 460 actual work days per 1,000 employees. This is equivalent to the loss of seven people full time for the three months period. The 460 days represent an average loss among the employees who were ill of 10 weeks of work (assuming a normal five-day work week)."

---

[1] Survey of Prolonged Non-Occupational Illness Among Employed Persons; Nature, Extent and Economic Aspects, Publication No. 90, and Prolonged Non-Occupational Illness; First Progress Report, Publication No. 95, Chicago, Research Council for Economic Security, 1952.

[2] Employees in Non-Agricultural Establishments, January, 1952, United States Department of Labor, Bureau of Labor Statistics, United States Government Printing Office, 1952. Government establishments have been excluded from total.

There were insufficient data on absences of less than one week to include the factor of the relation of prolonged absences to all absences in this report. Accordingly, comparisons were made between absences of one week or more and prolonged illnesses. Among all the workers covered in this report, 20% of all recorded absences of one week or more were prolonged illnesses. Here again women have an absence figure lower than the men, less than 15% compared to over 20%, respectively. "That the prolonged illnesses among skilled workers may present a special problem is re-emphasized. All of the other occupational groups are at or below the percentage for the whole group (20%) whereas the skilled worker showed an index figure of 48%."

The reversal of the incidence of absenteeism among female workers compared to male workers approaches confirmation in this group. Among male workers, prolonged illness accounted for 22% of all the absences; among the female workers, prolonged illness represented 13.4% of the absences. The research council suggests that, if prolonged illnesses represent 20% of all absences of one week or more, it is an important problem and that it becomes one of serious concern when it is noted that the prolonged illnesses were responsible for 56% of all the time lost during these absences.

Absences of not more than eight weeks represented 60% of the total absences but caused only 34% of the total time lost. Illnesses causing absences of more than 13 weeks, representing 20% of the illnesses, accounted for 46% of all time lost. The average duration of the prolonged illnesses (250 cases) was 51.18 days. While 250 illnesses are insufficient for any conclusions, they may be a clue. The duration figure is important in determining proper insurance coverage.

"Male and female workers were responsible for the same share of the prolonged illnesses as their percentage of the total number of employees. Clerical workers representing 17 per cent of all workers reported accounted for 11.45 per cent of all prolonged illnesses; an index figure of 33. Again male skilled workers representing less than 13 per cent of the workers reported accounted for 21 per cent of all of the prolonged illnesses; an index figure of 65."

The following ratios are based on 335 cases in which there was absence of more than four weeks. Some of the more obvious causes of prolonged illnesses were heart disease, nervous and mental disease, and chronic arthritis and rheumatism. It is interesting to note that, among the employees covered in this report, the largest percentage of cases were caused by diseases of the digestive system (29% of all cases). Diseases of the respiratory system caused 14.1%; fractures of the skull, spine, ribs, or limbs, 8.1%; malignant and benign neoplasms, 5.1%; and arthritis and rheumatism, except rheumatic fever, 4.8%. While diseases of the digestive system and respiratory tract were highest in terms of frequency, they were lowest in mean duration in weeks, 8.2 weeks and 7.7 weeks, respectively. Neoplasms and arthritis and rheumatism, which reflected the lowest percentage in frequency, were among the highest in terms of mean duration, 11.8 weeks and 13.6 weeks, respectively.

The data of the distribution of illnesses by age groups are, we believe, of sufficient interest to show that part of the chart reflecting "all illnesses" without any detailed consideration to that part of the chart breaking down the age groups according to disease.

Age Group	Number of Persons	%
24 and under	22	6.6
25-34	65	19.4
35-44	79	23.6
45-54	74	22.1
55-64	84	25.1
65 and over	11	3.2

There is only a 1.5 percentage point differential between the 35 to 44 age group and the 45 to 54 age group; the higher count is accounted for by the younger age group. With the exception of the group 24 years and under and the group 65 and over, the percentage point differential is not dramatic. If the preliminary ratio of 3.2% for the age group 65 and over is at all typical rather than atypical, prolonged illness may no longer be considered as being primarily a problem of geriatrics. "In only two of the disease groups did the workers over 45 account for more than one-half of the cases."

Half of the workers had been with their employer eight or more years. Approximately 17% had been employed less than 30 months, only 10% less than 19 months. Of the 335 employee samples, 59.3% had annual incomes of less than $3,500. Of this group, 21% had illnesses causing absences of more than 13 weeks. The council observes that, although the rate of incidence in this income group may not be any higher than that in any other, this represents the largest group of workers and the one least able to meet the cost.

SUMMARY

The ratios established in this preliminary report are based on only a small segment of the total sample, and, even with respect to this group, the total of desirable evidence has not been correlated. Accordingly, any indicated trends may prove to be more apparent than real. In spite, however, of the possible illusory aspects of the evidence before us, there are certain clues that legitimately stimulate our interest and attention. There is an apparent reversal of the absentee incidence among women workers compared to men. While the incidence of absenteeism among women is higher for illnesses of short duration, the ratio is apparently reversed for prolonged illness. Prolonged illness among skilled workers is emphasized and reemphasized to a degree that, if confirmed, will indicate a special investigation in this area. If prolonged illnesses prove to represent 20% of all absences of one week or more and are responsible too for approximately 56% of all time lost during these absences, then prolonged illnesses become a very important problem. If the average duration of some 250 illnesses (51.18 days each) is at all typical, prolonged illness becomes an important factor in terms of appropriate insurance coverage. On the basis of disease classification, diseases of the digestive system occur most frequently, and neoplasms (malignant and benign) and arthritis and rheumatism are the fourth and fifth, respectively, in order of frequency. The more apparent disabilities, such as heart diseases and nervous and mental diseases, are not even included in "the largest percentage of cases." Thus early diagnosis and adequate initial care may contribute to immediate improvements in incidence and duration. The low incidence in the age group 65 and over may necessitate a readjustment of the relative importance of geriatrics in the treatment of prolonged illnesses. The income group that can least afford it (annual incomes of less than $3,500) accounted for 59.3% of the prolonged illnesses.

Certainly the study to date has provided sufficient data, irrespective of the probable ratio adjustments, to indicate that we should look with interest toward the final correlations based on the total sample of 400,000 wage earners. The completed study should give to all interested valid data with which to attack the important problem of prolonged nonoccupational illness among the wage earners of this country.

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Am. J. Diseases Children, Chicago

85:393-522 (April) 1953

Use of Cortisone and Corticotropin (ACTH) in Treatment of Reticuloendotheliosis in Children. M. H. Bass, S. O. Sapin and H. L. Hodes. —p. 393.

Angiocardiography in Congenital Heart Disease Correlated with Clinical and Autopsy Findings. B. M. Gasul, H. Weiss, R. F. Dillon and others. —p. 404.

*Measles Encephalomyelitis. M. J. Fox, J. F. Kuzma and J. D. Stuhler. —p. 444.

Nephrotic Syndrome in Children: Observations on Clinical Course and Influence of Sulfonamide and Antibiotic Therapy. I. Philips, J. K. Calvin and B. M. Kagan.—p. 451.

Effect of Hemopoietic and Other Agents on Hydroxyphenyluria of Premature Infants. H. M. Nitowsky, C. D. Govan Jr. and H. H. Gordon. —p. 462.

Measles Encephalomyelitis.—Seventy-seven patients with measles encephalomyelitis were treated at a Milwaukee hospital from 1926 to 1951. The ages of the patients ranged from 5 months to 32 years, but nearly two-thirds were between the ages of 4 and 7. The onset of encephalomyelitis varied from several hours to nine days after the appearance of the morbilliform rash, but in nearly half of the cases it began three to four days after the appearance of the rash. A total of 22 of the patients died, and 15 of these had coma or convulsions or both. The cell count of the spinal fluid varied, but in nearly three-fourths of the patients it was below 90. Although it was over 90 in about half of those who died, the authors do not believe that the cell count of the spinal fluid is of prognostic significance. The protein content of the spinal fluid was increased in 61% of the patients, and the sugar content of the spinal fluid was normal or above normal in all but two of the patients. The leukocyte counts of the blood varied greatly, but in 60% of the patients it was between 9,000 and 18,000. Thirty-six of the 55 survivors answered a follow-up questionnaire, which revealed that 22 had completely recovered; one had choreiform movements for one year with frequent headaches, dizzy spells, and vomiting since that time; one has had persistent tremors involving the extremities; one is epileptic; one has a residual cord bladder, foot drop, and myopia; one is poorly coordinated; three are mentally defective; and six have shown personality changes. The results of necropsy studies on five of the patients are reported. The treatment of measles encephalomyelitis is largely symptomatic. In commenting on the diagnosis, the authors say that a diminished or absent cough reflex was one of the earliest signs of measles encephalomyelitis. It was noted in 74% of the patients. No medication containing codeine should ever be given to depress the cough of measles. The authors have observed patients with codeine intoxication who were hospitalized because of a supposed measles encephalomyelitis with convulsions, lethargy, vomiting, nuchal rigidity, cyanosis, and elevation of temperature. In each instance the spinal fluid findings were normal, and the patient recovered completely within 24 hours after oxygen and helium therapy was instituted.

A.M.A. Arch. Ind. Hyg. & Occupat. Med., Chicago

7:275-366 (April) 1953

Rapid Determination of Lead in Old Urine Samples. M. O. Amdur. —p. 277.

Comparative Toxicity of Synthetic and Natural Glycerin. C. H. Hine, H. H. Anderson, H. D. Moon and others.—p. 282.

Observations on Toxicity of Aldrin: I. Growth and Estrus in Rats. W. L. Ball, K. Kay and J. W. Sinclair.—p. 292.

*Acute Toxicity of Carnotite Ore Dust. H. B. Wilson, H. E. Stokinger and G. E. Sylvester.—p. 301.

Toxicity of Butyl Stearate, Dibutyl Sebacate, Dibutyl Phthalate, and Methoxyethyl Oleate. C. C. Smith.—p. 310

Blood and Urine Changes in Experimental Beryllium Poisoning. C. J. Spiegl, L. LaFrance and B. J. Ashworth.—p. 319.

Planning a Study to Determine Effects of Air Pollution on Health: Review of Methodology. A. F. W. Peart and G. H. Josie.—p. 326.

Anthracosilicosis Occurring in Foundry Employee. L. E. Hamlin.—p. 339.

Acute Toxicity of Carnotite Ore Dust.—Uranium miners are exposed to the dust from carnotite ore in their work. To determine the toxicity of this material the authors exposed animals to carnotite ore dust dispersed in a chamber atmosphere. Mean daily dust concentration was approximately 84 mg. per cubic meter; the average mass median diameter of the chamber dust (particle size) was 1.39 μ. Rabbits and one goat were exposed for 131 exposure hours during 31 calendar days; rats were exposed for 137 exposure hours during 32 calendar days. Ninety-two per cent of the rabbits died; 10% of the rats died. The goat survived. Toxicity was further evidenced in the rabbits by weight loss, by sharp elevation of blood nonprotein nitrogen and urinary protein levels, and by renal tubular damage; in the rat by weight loss, by renal tubular damage, and by gross lung damage; and in the goat by renal tubular damage. Mean deposits of uranium and vanadium in the rat lungs (370 and 146 μg per gram of fresh tissue, respectively) were 50 to 300 times as great as corresponding amounts in the femur and kidney. The same was true for uranium in the tissues of rabbits and the goat. Deposits of uranium and vanadium in the rat lungs increased linearly with exposure hours. The only hematological finding of interest was basophilic stippling in two of the rabbits. From the results of this experiment the authors conclude that carnotite ore dust inhaled by animals under the conditions of this experiment is highly toxic to the rabbit, moderately toxic to the rat, and slightly toxic to the goat. The toxicity is characteristic of uranium poisoning and in degree closely resembles that of uranium trioxide.

A.M.A. Arch. Internal Medicine, Chicago

91:417-576 (April) 1953

*Hydralazine (Apresoline®) Hydrochloride: Pharmacological Observations and Clinical Results in Therapy of Hypertension. J. H. Moyer.—p. 419.

*Pneumococcic Meningitis: Study of 102 Cases. J. D. Alexander Jr., H. F. Flippin and G. M. Eisenberg.—p. 440.

Intermittent Bundle-Branch Block: Observations with Special Reference to Critical Heart Rate. M. A. Shearn and D. A. Rytand.—p. 448.

Influence of Long-Term Bishydroxycoumarin (Dicumarol) Therapy on Liver Function. M. L. Meitus and P. Wasserman.—p. 464.

Serum Mucoprotein Level in Differentiation of Hepatogenic from Obstructive Jaundice. E. M. Greenspan and D. A. Dreiling.—p. 474.

*Cortisone in Treatment of Shoulder-Hand Syndrome Following Acute Myocardial Infarction. H. I. Russek, A. S. Russek, A. A. Doerner and B. L. Zohman.—p. 487.

Syphilis: Review of Recent Literature. H. Beerman, I. L. Schamberg, L. Nicholas and L. Katzenstein.—p. 493.

Hepatolenticular Degeneration: Review of Literature and Report of Case with Dimercaprol (BAL) Therapy. M. M. Schechter and C. A. Jones.—p. 541.

Hydralazine (Apresoline) Hydrochloride in Hypertension.—Moyer discusses the results obtained in the treatment of ambulatory patients with rather severe hypertension using hydralazine alone, or in conjunction with ganglionic blockade with hexamethonium. The dose employed was 25 to 50 mg. four times daily. Nineteen of 54 patients treated with hydralazine obtained an initial reduction in mean blood pressure of more than 20 mm. that was maintained for three months or

---

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individual subscribers, provided they reside in continental United States or Canada. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover only the last 11 years, and no photoduplication services are available. No charge is made to members, but the fee for other borrowers is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

more. After one year only nine patients continued to take the drug, and only five of these nine continued to maintain a significant reduction in mean blood pressure (excess of 20 mm., or below 150 mm. systolic and 100 mm. diastolic). In the remaining four side-reactions occurred when the drug is given in doses that will reduce the blood pressure. Eleven of 20 patients had proved unresponsive to hexamethonium alone in gradually increasing doses beginning with 250 mg. four times daily. In nine a significant blood pressure reduction was obtained with hexamethonium alone, but it was felt that better stability and/or additional reduction could be obtained with combined hexamethonium and hydralazine therapy. After hydralazine was added to the hexamethonium regimen, no significant reduction in blood pressure occurred in 7 of the 11 patients who failed to respond to hexamethonium alone, but 4 did show a significant response to combined therapy. In seven of the nine patients who had obtained some response to hexamethonium alone, there was a significant additional response when hydralazine was added, but in the two others there was no additional response. Of 32 patients who had proved unresponsive to hydralazine alone all but six showed a significant reduction in blood pressure following the administration of hexamethonium. Hydralazine, apparently reduces the blood pressure through a central vasodepressor action. At the same time it stimulates (centrally) the sympathetic nerves to the heart, causing tachycardia and increased cardiac output. During continued oral therapy the cardiac stimulant effect is lost long before the hypotensive effect. Eventually tolerance to the hypotensive response also develops. The cardiac stimulant effect is blocked off if hexamethonium has been given in amounts adequate to produce ganglionic blockade. Hydralazine reinforces the hypotensive effect of hexamethonium. Although hydralazine increases renal blood flow in patients with and without renal damage, glomerular filtration is not increased. The combined use of hexamethonium and hydralazine may produce a dramatic and sudden reduction in blood pressure, which in the presence of severe renal damage may be associated with a significant reduction in glomerular filtration rate and renal excretory function. Therefore, careful evaluation of changes in renal excretory function by repeated blood urea nitrogen determinations is necessary when treating hypertensive patients who have renal damage.

Pneumococcic Meningitis.—Alexander and associates review 102 cases of pneumococcic meningitis seen at the Philadelphia General Hospital during the past decade. Autopsy records were available in 68. Factors influencing the mortality rate were studied. The prognosis for recovery was more favorable in the 1 to 15-year-old group than in other age groups. The mortality rate does not appear significantly influenced by the presence of bacteremia or coma, but the rate is significantly higher when the meningitis is secondary to pneumonia than when the sinuses, middle ear, mastoid, or head trauma are involved. Pneumococci of types 4 and 12 were found in a significantly greater number of cases and were associated with a greater number of deaths than other types. Penicillin alone, or penicillin in combination with sulfonamides, is more effective in reducing the mortality rate than are sulfonamides alone or the sulfonamides in combination with type-specific anti-pneumococcus serum. The efficacy of penicillin is probably influenced by the speed with which therapy is begun and the intensity of the therapy. Intrathecal administration of penicillin does not seem necessary when moderate intramuscular doses of penicillin (800,000 to 2,400,000 units) and oral doses of sulfonamides (4 to 6 gm.) are given daily, or massive doses of penicillin (1,000,000 units every two hours) are administered intramuscularly. The rationale for the combined therapy is the demonstrated synergistic activity of penicillin and the sulfonamides against the pneumococcus. The rationale for the massive penicillin therapy is the ability to establish penicillin concentrations in the cerebrospinal fluid that are inhibitory for the pneumococcus. In view of the encouraging results obtained with these therapeutic schedules, surgical intervention should be confined to cases in which the response is not as anticipated.

Cortisone in Shoulder-Hand Syndrome Following Myocardial Infarction.—Cortisone was employed in the treatment of 17 patients in whom the shoulder-hand syndrome developed as a complication of acute myocardial infarction. In all these patients previous treatment with physical therapy, manipulative therapy, or local and stellate ganglion blocks was without significant effect. Cortisone produced complete relief of signs and symptoms in five patients, marked improvement in eight, moderate improvement in three, and no significant response in one. The striking feature of the treatment was its dramatic effect in the relief of pain, often within 24 to 48 hours. In addition, there was concomitant but often less marked improvement in the range of motion at affected joints. Vasomotor disturbances were also rapidly influenced, with decrease or disappearance of edema and improvement in temperature, color, and sudomotor activity of the hand. In patients responding favorably, there was no recurrence of symptoms after discontinuance of treatment. No thromboembolic complications were encountered in this series. These and previous observations fail to confirm the serious risk of vascular complications that is claimed to result from the use of this drug. Cortisone appears to be a safe and extremely effective form of treatment in refractory cases of the shoulder-hand syndrome complicating acute myocardial infarction.

A.M.A. Arch. Neurology and Psychiatry, Chicago

69:415-550 (April) 1953

Psychotic Reactions in Problem Drinkers Treated with Disulfiram (Antabuse). E. A. Macklin, A. Simon and G. H. Crook.—p. 415.
Visual Disturbances as Result of Nystagmus on Direct Forward Gaze: Effect of Amobarbital (Amytal®) Sodium. M. Nathanson, P. S. Bergman and M. B. Bender.—p. 427.
Intellectual Functions in Myxedema. R. M. Reitan.—p. 436.
Symptoms and Signs Referable to Basal Ganglia in Brain Tumor. D. Sciarra and B. E. Sprofkin.—p. 450.
Endogenous Eosinopenia in Institutionalized Patients with Mental Deficiency. F. Halberg, R. Engel, A. E. Treloar and R. J. Gully.—p. 462.
Study of Adrenocortical Physiology in Normal and Schizophrenic Men. H. Hoagland, G. Pincus, F. Elmadjian and others.—p. 470.
Subdural Hematoma Following Subarachnoid Hemorrhage. J. Golden, G. L. Odom and B. Woodhall.—p. 486.
Pain from Dermal, Periosteal, and Fascial Endings and from Inflammation: Electrophysiological Study Employing Differential Nerve Blocks. W. Landau and G. H. Bishop.—p. 490.
An Extralemniscal Sensory System in Brain. J. D. French, M. Verzeano and H. W. Magoun.—p. 505.
A Neural Basis of Anesthetic State. J. D. French, M. Verzeano and H. W. Magoun.—p. 519.

A.M.A. Arch. Ophthalmology, Chicago

49:375-480 (April) 1953

Electroretinographic Studies in Cases of Pigmentary Degeneration. J. Jacobson and J. M. O'Brien.—p. 375.
Bilateral Superior Oblique Paralysis. M. J. Urist.—p. 382.
Honeycomb Colloid Degeneration of the Retina. M. G. Alper and J. A. Alfano.—p. 392.
Hydrocortisone (Compound F) in Ophthalmology: Clinical and Experimental Studies. P. R. McDonald, I. H. Leopold, A. W. Vogel and R. D. Mulberger.—p. 400.
*Treatment of Chemical Burns of the Eye. R. D. Harley.—p. 413.
Miotic Therapy of Chronic Glaucoma—Changing Trends. K. C. Swan.—p. 419.
Clinical Testing of Visual Acuity. H. Ehlers.—p. 431.
Fundus Photographs in Color Using a High-Speed Flash Tube in Zeiss Retinal Camera. K. N. Ogle and C. W. Rucker.—p. 435.
Aqueous Veins: Their Status Eleven Years After Their Detection. K. W. Ascher.—p. 438.
Lens and Vitreous. J. G. Bellows.—p. 452.

Treatment of Chemical Burns of the Eye.—Kuhn, who treated over 300 cases of chemical and thermal burns of the eye with calsulfhydryl (Hydrosulfosol), reported that pain was controlled, healing was more rapid, visual restoration was accelerated, permanent disability was reduced, and there were fewer indications for conjunctival flaps. Calsulfhydryl has also been reported to be a valuable adjunct in the treatment of ocular injuries caused by anhydrides and detergents. To verify those reports Harley studied the effects of calsulfhydryl in a total of 157 rabbit eyes in which burns had been produced with various chemical agents, including strong acids, strong alkalis, anhydrides, and specific agents designed for enzyme inhibition. In 53 pairs of rabbit eyes in which corneal lesions were produced with various chemicals, results showed that the calsulfhydryl-treated eye was neither better nor worse than the control, untreated eye. With only one chemical, iodoacetate, did calsulfhydryl, in three paired experiments, give consistently better results than those in the control eye. This was to be expected, since calsulfhydryl supplies sulfhydryl radicles, which combine with iodoacetate, thus preventing iodoacetate from inhibiting tissue enzymes and denaturing tissue protein. The author feels that the chief sphere of activity for sulfhydryl compounds is in lesions produced by specific enzyme-inhibiting agents that combine chemically with the sulfhydryl radical. Studies of lesions caused by specific chemicals should be undertaken for further evaluation of this compound. Present day concepts of the treatment of ocular burns are outlined and modified in the light of the observations described. The technique of "denudation of the cornea" advocated by McLaughlin has certain advantages, especially in alkali burns. Cortisone appears to be of definite value in inhibiting fibroblastic proliferation and corneal vascularization.

Alabama State Medical Assn. Journal, Montgomery

22:255-278 (April) 1953

Management of Emphysema. L. L. Friedman.—p. 255.
Infectious Mononucleosis with Acute Thrombocytopenic Purpura: Report of Case. W. L. Smith.—p. 257.
Intramedullary Nailing of Femoral Fractures. C. H. Wilson, C. L. Yelton and D. G. Vesely.—p. 261.
*Hypersensitivity to Protamide: Report of Case. A. S. Zdanis.—p. 267.

Hypersensitivity to Protamide.—Protamide, a proteolytic enzyme prepared from hog stomach, has been in use for over 10 years in the treatment of tabes dorsalis, because of its ability to relieve the lightning pains of tabes in a high percentage of cases. Lately, this drug has been used in the control of the pain and itching occurring in herpes zoster. In the case of herpes zoster presented here there occurred a severe systemic reaction immediately following the injection of the recommended dose of protamide. Skin tests performed later seemed to indicate a hypersensitivity in comparison with the results in six other persons. It is evident that this drug should be used with caution. A fraction of the original dose should be given at first, in order to reduce the severity of the reaction if one should occur.

American Journal of Clinical Pathology, Baltimore

23:311-412 (April) 1953

*Excretion and Distribution of Polyvinyl Pyrrolidone in Man: As Determined by Use of Radiocarbon as Tracer. R. K. Loeffler and J. Scudder.—p. 311.
Isoagglutinin Response to Injections of Specific Substances A and B: Derived from Animal Sources and from Meconium. G. R. Sickles and P. P. Murdick.—p. 322.
Tetrazolium Salts: New Tool in General and Experimental Pathology. M. M. Black, B. W. Zweifach and F. D. Speer.—p. 332.
Regranulation of Beta Cells of Islets of Langerhans Following Insulin and Starvation. S. T. Nerenberg.—p. 340.
Effect of Plasma in Toxemia of Pregnancy on Volume of Normal Erythrocytes. Y. M. Bromberg and S. Z. Rosenberg.—p. 343.
Infestation of Skin with Demodex Folliculorum. R. L. Breckenridge.—p. 348.
*Cytomegalic Inclusion Pneumonitis in Adult. J. P. Wyatt, T. Simon, M. L. Trumbull and M. Evans.—p. 353.
Human Infection with Atypical Acid-Fast Organisms: Report of Two Cases with Pathologic Findings. V. B. Buhler and A. Pollak.—p. 363.

Excretion of Polyvinyl Pyrrolidone.—The excretion rate and the subsequent distribution in the body of retained portions of the proposed plasma extender polyvinyl pyrrolidone were studied in four patients with advanced cancer who required hydration by the intravenous route. Determinations were made by using C^{14} labeled polyvinyl pyrrolidone (PVP-macrose) as a tracer. About one-third was excreted in the urine in the first six hours, one-half in the first 12 hours, and about two-thirds in the first 24 hours. Small amounts were excreted in the feces. Each of the four patients died within from two to eight days following the administration of polyvinyl pyrrolidone, and necropsies were performed on all. The unexcreted portion of polyvinyl pyrrolidone showed a distribution consistent with that of any inert material of large molecular size, with the greatest concentrations tending to occur in the kidneys, lungs, liver, spleen, and lymph nodes. No histological evidence of polyvinyl pyrrolidone itself, or damage caused by it, was demonstrated. The authors emphasize that nothing can be concluded from these data about the effectiveness of polyvinyl pyrrolidone-macrose as a plasma extender or about possible physiological damage resulting from its use.

Inclusion Pneumonitis in Adult.—The occurrence of severe and distinctive pneumonitis due to the salivary gland virus is reported in a 54-year-old woman and in a 28-year-old man. Biopsy of the lung permitted the diagnosis to be made during life. Histopathological examination of lungs in both cases revealed essentially similar features. The lung parenchyma was greatly altered. The cells lining the alveoli were large and prominent, varying from cuboid to swollen polyhedral forms with round vesicular nuclei. This reversion to a "fetal type" of lining cell was prominent in all areas. Many of these cells were exfoliated into the alveoli or lined up around the septal walls, and showed both giant nuclear inclusions and multiple cytoplasmic inclusions. All the alveoli were distended by large plugs of esosinophilic protein coagulum with only threads of fibrin that stained blue with Weigert's stain. Plastered against the septal walls and spreading through pores of Cohn were dense membranes, which stained intensely with Sudan black B and periodic acid (Schiff) and metachromatically with toluidine blue. The inflammatory cells, observed principally in the septal walls, were numerous and predominantly of the large mononuclear or plasma cell variety. The mononuclear infiltrate and the hyaline membrane suggested a virus infection. The alveolar walls were greatly widened by fluid and nodal collections of monocytic cells. Frank intra-alveolar hemorrhage was focal but extensive in distribution. In the male patient, the mononuclear response was so intense that it simulated a lymphomatous infiltration; in addition a necrotizing arteritis was observed, the cause of which is obscure. It is suggested that the fulminating salivary-gland-virus disease in adults may result from altered susceptibility induced by the action of antimetabolites.

American J. Digestive Diseases, Fort Wayne, Ind.

20:91-116 (April) 1953

Superficial Cancer of Gastric Mucosa. G. E. Konjetzny.—p. 91.
Problem of Acute Abdominal Pain. H. Gauss.—p. 96.
Investigation of Enteric Infections in Caribbean Area: I. Survey of Intestinal Parasitism in Lombardia, Michoacan, Mexico. M. P. Nat:, A. Lopez-Rico and V. M. Young.—p. 105.
Treatment of Migraine, Gout and Heberden's Nodes: (Factor Common to These Conditions). M. B. Levin and B. A. Gwynn.—p. 107.
Biological Basis of an Alimentary Regime Preventing Intestinal Fermentation and Intoxication. N. Dobrovolskaia-Zavadskaia.—p. 109.

American Journal of Medicine, New York

14:389-536 (April) 1953

Biochemical Disturbances and Clinical Symptoms During Prolonged Exchange Resin Therapy in Congestive Heart Failure. L. Greenman, J. B. Shaler and T. S. Danowski.—p. 391.
Metabolic Studies on Effects of Ion Exchange Resins in Edematous Patients with Cardiac and Renal Disease. R. E. Weston, J. Grossman, E. R. Borun and others.—p. 404.
Treatment of Edema by Removal of Body Sodium by Cation Exchange Resin. L. E. Duncan Jr.—p. 425.
Heparin Treatment of Angina Pectoris. A. Grüner, T. Hilden, F. Raaschou and H. Vogelius.—p. 433.
*Effect of Heparin in Effort Angina. S. H. Rinzler, J. Travell, H. Bakst and others.—p. 438.
Edema of Acute Nephritis. J. P. Peters.—p. 448.
Differential Diagnosis, Pathogenesis and Treatment of Thrombocytopenic Purpuras. E. L. Lozner.—p. 459.

Effect of Heparin in Effort Angina.—Graham discovered that angina pectoris is sometimes relieved during heparin therapy while he was investigating the effects of heparin on the concentration of the serum lipoproteins (S_f 12-20 and 20-100). The efficacy of heparin in effort angina has since been corroborated by some and denied by others. Rinzler and coworkers report observations on 18 patients with unequivocal evidence of coronary artery disease and with a history of chest pain produced by effort (usually walking) and relieved promptly by rest or nitroglycerin. The patients were observed for approximately two months prior to heparin administration. To eliminate the factor of unconscious bias the double blind-fold method was employed. This meant that the study was conducted by a team, and that not merely the patient but also the physicians who questioned and examined them, injected the solutions, and later assessed the data were unaware of the nature of the coded solution given to any particular patient. The patients were paired with respect to age, sex, duration of effort angina, and incidence of myocardial infarction, and were then divided at random into two parallel series. Heparin was administered to one group of nine patients while the placebo was given concurrently to the other group of nine twice weekly over a period of eight to nine weeks. Each dose of heparin was 100 mg. The effect of the injections on effort angina was judged by the daily report card system (the patient's day-to-day evaluation of cardiac pain) and by the average number of nitroglycerin tablets used per week. Electrocardiograms and ballistocardiograms were taken before and after the course of injections. The results, based on the analysis of 1,883 report card days recorded by 18 patients, show that heparin has no greater effect than a placebo in the control of effort angina. A comparison of the levels of serum lipoproteins of the S_f 12-20 and S_f 20-100 classes showed no significant change in concentration after six weeks of heparin or placebo therapy. Side-effects consisted of dizziness and headache; their incidence was slightly higher in the placebo than in the heparin group.

American Journal of Ophthalmology, Chicago

36:433-598 (April) 1953

Type of Congenital Ocular Motor Apraxia Presenting Jerky Head Movements: Jackson Memorial Lecture. D. G. Cogan.—p. 433.
*Evaluation of Urethane of Beta-Methylcholine Chloride in Chronic Glaucoma. F. Frisch and I. H. Leopold.—p. 442.
*Present Status of Goniotomy. O. Barkan.—p. 445.
Cataracts in Galactosemia: Observations in Three Cases. A. Patz.—p. 453.
Posterior Half-Incision of Cornea for Astigmatism: Operative Procedures and Results of the Improved Tangent Method. T. Sato.—p. 462.
Management of Eye Casualties in Far East Command During Korean Conflict. F. E. Hull.—p. 467.
Effect on Ocular Bacterial Flora of Local Treatment with Chloromycetin (Chloramphenicol), Terramycin or Penicillin-Streptomycin Ophthalmic Ointments in Preoperative Cataract Cases and Miscellaneous Infections. D. Locatcher-Khorazo.—p. 475.
Bacterial Sensitivity Tests in Treatment of Chronic External Ocular Infections. J. A. McNeill.—p. 480.
Etiology of Acute Glaucoma. B. Rosengren.—p. 488.
Pupil in Syphilis. N. S. Jaffe.—p. 493.
Effect of Age on Carbonic Anhydrase Activity of Bovine Lenses. T. Reich and R. W. Healy.—p. 500.
Machek Operation Applied to Lower Lid for Relief of Senile Extropion. J. E. Lebensohn.—p. 504.

Bethanechol Chloride in Chronic Glaucoma.—The urethane of bethanechol (Urecholine) chloride is a cholinergic agent simulating acetylcholine in its action, but it is not as rapidly destroyed by cholinesterase. It combines the two components that individually render methacholine (Mecholyl) and carbachal (Doryl) more stable than acetylcholine in tissues. It is possibly the longest acting miotic and the most potent of this choline series. Even in dilute solutions, it can be autoclaved at 120 C for 20 minutes without loss of potency. Its use in ophthalmology has been limited, but it has been used widely in postoperative urinary retention, abdominal distention, gastric retention, and megacolon. Because of its potential value in the medical therapy of glaucoma, it was tried by Frisch and Leopold in treatment of chronic glaucoma. Comparisons were made with other cholinergic agents, namely, both the nitrate and hydrochloride salts of pilocarpine, carbachol, and physostigmine, an anticholinesterase. Bethanechol chloride was tried also in several cases of glaucoma secondary to venous thrombosis and in several cases of absolute glaucoma. The concentration of the drug employed was 1% in benzalkonium (Zephiran) (1:10,000). It was applied by the instillation method, as were the other drugs with which it was compared. The authors conclude that in a 1% concentration this drug approximates pilocarpine (1 or 2%) and carbachol (0.75%) in the treatment of chronic noncongestive glaucoma. In the 1% concentration the drug was not effective in glaucoma secondary to venous occlusion. The authors list the following disadvantages of this drug: It caused a mild allergic reaction in one of 42 eyes. There is the possibility of bronchoconstriction in asthmatic persons, but no instance of this occurred in this series, and ciliary spasm may occur but it is not marked. The drug appears to be an effective and safe miotic that may possibly be useful as a substitute for pilocarpine or carbachol in chronic glaucoma.

Present Status of Goniotomy.—Barkan believes that goniotomy is indicated in all bilateral and unilateral cases of congenital glaucoma in which increased pressure is the result of obstruction of the angle by persistent embryonic tissue or false anterior insertion of the iris, provided that Schlemm's canal has not been obliterated by prolonged distention of the globe. This includes the majority of cases of congenital glaucoma. A total of 178 eyes with congenital glaucoma were subjected to goniotomy between 1936 and 1952. The results of the operations on the first 76 eyes were previously reported. Goniotomy preserved useful vision in most of the 178 eyes with infantile glaucoma. In 129 eyes pressure was normalized and vision maintained or restored. In those cases in which the diagnosis was made early, the operation insured vision sufficient to permit the child to attend ordinary schools. The operation was unsuccessful in 26 eyes. In the last three years, by virtue of improvements and simplifications in technique, it has been possible to operate with the glass under gonioscopic control on eyes in which this procedure would formerly have been impossible. This technique is described. A case of glaucoma associated with aniridia was operated on successfully by goniotomy. While no conclusion can be drawn from an isolated case, the author feels that the good result in this case encourages the hope that goniotomy may in the future prove effective in similar cases. The author pleads for the early diagnosis of congenital glaucoma and for prompt, adequate operation by goniotomy. The operation should be performed under gonioscopic control whenever possible. If, soon after its onset, increased intraocular pressure is normalized by goniotomy, transparency of the cornea is almost completely restored and maintained, and vision is afforded an opportunity to develop. The urgency of prompt relief of the increased pressure is stressed.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

69:539-722 (April) 1953

New Objective of American Radium Society: Scientific Study of Physical Properties and Therapeutic Application of all Pertinent Ionizing Radiations. H. F. Hare.—p. 539.
Significance of Growth in Roentgenological Skeletal Changes in Early Congenital Syphilis. A. Engeset, S. Eek and O. Gilje.—p. 542.
Roentgenography of Kerosene Poisoning (Chemical Pneumonitis). J. Gershon-Cohen, L. S. Bringhurst and R. N. Byrne.—p. 557.
Paraduodenal Hernias. P. B. Parsons.—p. 563.
Pseudodiverticular Sarcoma of the Stomach. A. B. Skorneck.—p. 590.
Primary Chondrosarcoma of Occipital Bone. S. Krantz and B. B. Gay Jr.—p. 598.
Lipoma of Corpus Callosum: Case Report. C. D. Smith and E. N. Weaver.—p. 605.
Leukemia and Pregnancy, with Case Report. F. H. Lutze.—p. 608.
Chordoma: Its Roentgen Diagnostic Aspects and Its Response to Roentgen Therapy. E. J. Sennett.—p. 613.
*High Energy Electrons for Treatment of Extensive Superficial Malignant Lesions. W. W. Evans, J. H. Anson, H. F. Hare and others.—p. 623.
Observations on Series of Aryl Triiodo Alkanoic Acid Derivatives with Particular Reference to New Cholecystographic Medium, Telepaque. J. O. Hoppe and S. Archer.—p. 630.
Simple Method of Roentgen Pelvimetry. R. W. Curry.—p. 638.
Satisfactory Copies from Original Roentgenograms on Production Basis. H. G. Morse.—p. 647.

High Energy Electrons for Superficial Malignant Lesions.—There has been an increasing interest in the possibility of using artificially accelerated high energy electrons in radiation therapy. It has been recognized that the biological effect of high energy cathode rays and roentgen rays should be similar, since the ionization that they produce in tissue is mostly the result of electron interaction. Similar doses of electrons and roentgen rays were required to elicit a specific biological response in micro-organisms. The superiority of cathode rays for the treatment of superficial malignancies arises from the unique localization of its ionizing energy below the absorbing surface. The authors compare the distribution obtained with 2.5 mev. cathode rays with that of 100 kv. roentgen rays with standard factors of filter and distance used in superficial therapy. The dosage distribution in depth obtained from a radioactive strontium (Sr^{90}) beta ray source using a typical surface applicator is also shown. So far only four patients have been treated with the cathode rays, which were produced by an electrostatic accelerator of the Van de Graaff type insulated with compressed gas designed at the Massachusetts Institute of Technology. These patients had extensive skin lesions no longer amenable to other forms of treatment, including roentgen therapy. Two of the four patients had pathologically and clinically diagnosed mycosis fungoides and two atopic dermatitis. Blood studies carried out during treatment revealed no changes indicative of damage to the hematopoietic system. In the two patients with mycosis fungoides most lesions entirely disappeared, and, at the time of writing, their skin, while still pigmented as a result of disease, appeared normal. The two patients with atopic dermatitis improved only slightly. The authors feel that cathode rays will be efficacious in the therapy of a number of benign skin lesions, including keloids, verrucae, industrial dermatoses, and tinea capitis. Cathode rays should be helpful in the treatment of localized malignant lesions, such as basal cells and squamous cell carcinoma. They appear to be especially applicable to generalized superficial malignant lesions such as mycosis fungoides.

American Journal of Surgery, New York

85:469-588 (April) 1953

Perinephric Abscess. R. S. Hotchkiss.—p. 471.
Küntscher Nailing of Forearm in Problem Cases. J. E. M. Thomson, D. A. Willander and E. S. Maxim.—p. 486.
Intramedullary Fixation of Fractures of Forearm: Evaluation of 20 Successive Unselected Cases. R. C. Robertson.—p. 496.
Radical Surgery for Cancer of Extremities. A. G. James and W. Furste. —p. 503.
Carcinoma of Breast. J. L. Donhauser.—p. 513.
Carcinoma of Penis: Evaluation of Recurrence Following Limited Surgery and Presentation of an Extended Surgical Attack. P. B. Hudson, J. A. Hopkins and G. W. Fish.—p. 519.
Management of Benign Lesions of Lower Bowel: New Technic Utilizing the Electrotome. G. S. Rost.—p. 523.
Malignant Tumors Originating in Meckel's Diverticulum: Case Report of a Leiomyosarcoma and Review of Literature. F. A. Hill and D. E. Janelli.—p. 525.
Evaluation of Vascular Ligations in Reversing Experimental Ascites. N. C. Jefferson and H. Necheles.—p. 529.
Intrathoracic Hürthle Cell (Oxyphil Cell) Tumor of the Thyroid. W. Sinclair Jr. and B. B. Larsen.—p. 534.
Trichlorethylene Anesthesia in Pediatric Urology. H. I. Roseman.—p. 539.
Modified Twin Stitch Technic for Urinary Incontinence. R. Tauber. —p. 541.
Effects of Early and Late Ambulation Upon the Surgical Patient. L. T. Palumbo, H. H. Samberg, R. E. Paul and others.—p. 544.
Box Top Closure for Huge Incisional Hernia. L. V. Rush and H. L. Rush. —p. 552.

Am. Practitioner & Digest of Treatment, Philadelphia

4:247-304 (April) 1953

Medical Management of the Poliomyelitis Problem. R. Batson.—p. 247.
Psychiatric Aspects of Menopause. W. Karliner.—p. 256.
Pituitary Influence on Growth and Development. R. Klein.—p. 261.
*Raynaud's Disease and Raynaud's Phenomenon. A. L. Scherbel.—p. 266.

Raynaud's Disease and Raynaud's Phenomenon.—Raynaud's phenomenon, a functional vasospastic disorder, is frequently a manifestation of serious systemic disease. It must be distinguished from Raynaud's disease proper, which is characterized by the following criteria established by Allen and Brown: (1) episodes of Raynaud's phenomenon excited by cold or emotion; (2) bilaterality of Raynaud's phenomenon; (3) absence of gangrene, or if present, its limitation to minimal grades of cutaneous gangrene; (4) absence of any primary disease that might be causal; and (5) persistence of symptoms for two years or longer. Since patients with Raynaud's disease have no serious organic vascular disease, they should be reassured. Progression of the disease is possible, however, and examination at regular intervals is advisable. The patient should be advised that the body, as well as the extremities, must be sufficiently warm. Since smoking produces vasoconstriction and reduces skin temperature, patients who smoke excessively should be advised to abstain. Conservative therapy is sufficient if the disease is mild and nonprogressive; sympathectomy is the most satisfactory treatment if symptoms increase in severity or complications develop. Discussing the conditions that may be associated with secondary Raynaud's phenomenon, the author mentions among others: thromboangiitis obliterans, arteriosclerosis obliterans, pneumatic hammer disease, generalized scleroderma, periarteritis nodosa, and conditions resulting from various traumas, such as gun-shot wounds, fractures, severe sprains, and bruising injuries near large blood vessels. Occasionally a cervical rib or the shoulder-hand syndrome are associated with neurovascular symptoms. Diseases of the nervous system that may be complicated by secondary Raynaud's phenomenon are anterior poliomyelitis, progressive muscular atrophy, myelodysplasia, spina bifida, spinal cord tumors, protruded intervertebral disks, and head injuries. Arsenic intoxication may also be associated with secondary Raynaud's phenomenon. Whenever Raynaud's phenomenon is secondary to some other disease, treatment should be directed against the underlying disease.

American Review of Tuberculosis, New York

67:401-552 (April) 1953. **Partial Index**

*Late Results of Modified Bed Rest in Active Uncomplicated Minimal Pulmonary Tuberculosis. R. S. Mitchell.—p. 401.
*Late Results of Treatment of Primary Tuberculous Pleurisy with Effusion with Modified Bed Rest. R. S. Mitchell.—p. 421.
Personality Characteristics of Tuberculous Patients who Leave Tuberculosis Hospital Against Medical Advice. M. E. Rorabaugh and G. Guthrie.—p. 432.
Role of Lymphatics in Development of Bronchogenic Tuberculosis. P. Schwartz.—p. 440.
Pulmonary Histoplasmosis: Study of 22 Cases with Identification of H. Capsulatum in Resected Lesions. T. F. Puckett.—p. 453.
Coexisting Pulmonary Coccidioidomycosis and Tuberculosis. H. F. Stein. —p. 477.
Mode of Action of Isoniazid. W. R. Barclay, R. H. Ebert and D. Koch-Weser.—p. 490.
Clinical Evaluation of Hemagglutination Reaction. A. G. Hollander, M. Frobisher Jr. and K. Kalisch.—p. 497.
Influence of Various Sources of Nitrogen on Activity of Antimicrobial Drugs: II. Mycobacterium Avium. E. D. Weinberg.—p. 503.
*Control Study of Comparative Efficacy of Isoniazid, Streptomycin-Isoniazid, and Streptomycin—Para-Aminosalicylic Acid in Pulmonary Tuberculosis Therapy: III. Report on 28-Week Observations on 649 Patients with Streptomycin Susceptible Infections. F. W. Mount and S. H. Ferebee.—p. 539.

Bed Rest in Minimal Pulmonary Tuberculosis.—From 1927 through 1946, 589 patients with active, uncomplicated minimal tuberculosis were treated by modified bed rest alone at Trudeau Sanatorium, New York; they were followed for 5 to 25 years. On this regimen the patient spent approximately 20 to 21 hours per day reclining in bed or on a chaise longue, eating meals in an adjoining room, and had full bathroom privileges. Because the mortality due to tuberculosis was quite low (5% in 20 years), rates of progression of tuberculosis were used to measure the effectiveness of the treatment. The term "progression" is defined as any definite increase of disease or development of cavity interpreted from the chest roentgenogram. Each search for a possible correlation of the rates of progression and various factors such as age, sex, extent of disease, was first made by using "five-year progression (any) rates." The "five-year progression (any) rate" was the proportion of patients having at least one progression, as defined, during residence at the sanatorium or during the first five years after discharge. Since contact with 26 of the 589 patients was lost in less than five years after discharge, only 563 remained available for analysis by this method. Of these 563 patients, 201 (35.8%) at the end of the 20 year follow-up have had at least one known progression. The condition of 154 (27.6%) progressed at some time during the 20 years to advanced disease, i. e., beyond the minimal classification. The chance of recurrent progression among those who had a primary progression was approximately the same as the chance of a first progression in the entire group. The age of the patient and the extent of the disease were observed to be related to the incidence of later progression. Sex, location of disease, duration of modified bed rest, duration of sanatorium residence, and duration of time away from full employment had no demonstrable relationship to later progression. Despite the low tuberculosis mortality, progressions and recurrent progressions of minimal tuberculosis produced a total loss of economic usefulness of sufficient magnitude to justify a continued search for a more dependable form of treatment for minimal tuberculosis than modified bed rest.

Bed Rest in Tuberculous Pleurisy with Effusion.—In 194 cases of primary tuberculous pleurisy with effusion, with and without minimal pulmonary infiltration, treatment consisted of modified bed rest at the Trudeau Sanatorium, New York. The patients were followed for 5 to 25 years after discharge. Of the 194 patients, 10 died of tuberculosis, a cumulative tuberculosis mortality of 5% in 20 years; the cumulative rate of reactivation of tuberculosis was 23.7% within the same period. Most of the initial reactivations of tuberculosis occurred within five years following discharge. Contact was lost with 27 (14%) of the 194 patients. Of the remaining 167 patients, 142 (85%) were well and able to work 5 to 25 years after discharge. Evidence suggested that the presence and extent of minimal pulmonary infiltration is related to the rate of reactivation of tuberculosis during the first five years after discharge. Other factors, which were apparently unrelated to the incidence of reactivation of tuberculosis, were as follows: age, sex, severity of symptoms, presence or absence of Mycobacterium tuberculosis in sputum and pleural fluid, and duration of modified bed rest and sanatorium residence.

Comparison of Isoniazid, Streptomycin and Isoniazid, and Streptomycin and *p*-Aminosalicylic Acid in Pulmonary Tuberculosis.—Of 649 patients with pulmonary tuberculosis susceptible to streptomycin who were treated and observed for 28 weeks, 203 were given 1 gm. of streptomycin twice weekly plus 10 to 12 gm. of *p*-aminosalicylic acid daily; 219 received 1 gm. of streptomycin twice weekly plus 150 to 300 mg. of isoniazid daily; the remaining 227 patients received 150 to 300 mg. of isoniazid alone daily. Thirteen of the 649 patients died during the 28 weeks of observation: three from the streptomycin-*p*-aminosalicylic acid group, two from the isoniazid group, and four from the streptomycin-isoniazid group died of tuberculosis, while three in the last-named group died of myocardial infarction, and one of cerebral hemorrhage. Improvement, as evidenced by roentgenographic, clinical and laboratory findings, continued with all three treatment regimens. At the end of 28 weeks, 47% of the patients in the streptomycin and *p*-aminosalicylic acid group, 54% of those in the streptomycin and isoniazid group, and 51% of the patients in the isoniazid group demonstrated at least a moderate degree of roentgenographic improvement; approximately an additional 25% showed slight improvement. Thus the results of treatment were essentially similar on the three regimens.

American Surgeon, Atlanta, Ga.

19:313-396 (April) 1953

Malignant Melanoma. J. P. McNeill, J. V. Goode and A. Caroe. —p. 313.
*Problem of Wound Disruption. H. M. Schiebel and B. Creech.—p. 318.
New Technic of Combining Thoracoplasty with Pulmonary Resection. W. F. Stone Jr.—p. 326.
Thoracoabdominal Approach to Upper Abdomen. H. Acuff and J. H. Hall.—p. 335.
Use of New Long Lasting Local Anesthetic Solution for Relief of Pain After Thoracoplasty and Pulmonary Resection. W. R. Deaton Jr. —p. 349.
Technical Safeguards in Partial Gastric Resection. J. M. Parker—p. 354.
Surgical Treatment of Surface Lesions of Head and Neck. C. E. Lockhart.—p. 361.
Conservative Treatment of Hydronephrosis. H. S. Browne.—p. 370.
Unilateral Lobotomy for Treatment of Intractable Anxiety States. E. H. Parsons, R. D. Woolsey, S. R. Banet and G. H. Lawrence.—p. 374.
Management of Common Anorectal Conditions with Special Emphasis on Prevention of Pain. R. H. Bell.—p. 382.
Staged Resection for Pelvic Colon and Rectum with Secondary Anastomosis. G. E. Gruenfeld.—p. 386.

Wound Disruption.—After reviewing the physiology of wound healing, Schiebel and Creech discuss the etiological factors in disruption, emphasizing that delayed wound healing and increase in intra-abdominal pressure postoperatively are the most important of these factors. They review the records of 23 cases seen in a community hospital of 225 beds over a period of 10 years. The operations were performed by several surgeons, but the technique of wound closure was usually the same, with the use of continuous surgical catgut in the peritoneum and interrupted sutures of cotton or silk in the fascial layer. Disruption followed cholecystectomy in five cases, appendectomy in three cases, and malignant lesions were present in three cases. Anemia was present in two cases and obesity in one. Intestinal obstruction and/or abdominal distention complicated eight cases. Retching or postoperative coughing was a definite factor in causing disruption in eight cases. There were two operations on the colon. Infection was not important. When dehiscence is discovered, any eviscerated bowel should be covered with a sterile dressing and the abdomen taped to prevent further disruption. Morphine is given and a gastric suction tube is inserted. The stomach is aspirated and the tube is left in place. Dextrose is given intravenously. If indicated before or during operation, transfusions of whole blood are given. If the patient's condition permits, the wound is resutured at once. In the 23 cases observed at their own hospital, closure of the wound on the day of disruption seemed to have no influence on the mortality, since all five patients who died had been treated in this way. The mortality rate is highest after colon operations and in patients with cancer. The chief causes of death are pneumonia and peritonitis, but pulmonary and myocardial infarction are found in some patients who come to autopsy.

Angiology, Baltimore

4:103-182 (April) 1953

*Treatment of Peripheral Vascular Diseases with Cyclospasmol: (Mandelic Acid Ester of 3, 5, 5-Trimethylcyclohexanol). T. W. van Wijk.—p. 103.
Pedunculated Thrombus of Left Auricle Causing Death During Aortic Embolectomy. S. H. Gumbiner and J. L. Keeley.—p. 114.
Treatment of Post-Poliomyelitic Ulcerations of Legs with Lumbar Sympathectomy. F. Martorell, T. Alonso and V. Salleras.—p. 118.
Lipogram Studies in Coronary Atherosclerosis: I. Response to Lipotropic Agents. L. M. Morrison.—p. 123.
Serum Phospholipid-Cholesterol Ratios in Coronary Atherosclerosis: II. Response to Lipotropic Agents. L. M. Morrison.—p. 130.
Clinical Plethysmography: Part I: An Improved Direct Writing Plethysmograph. T. Winsor.—p. 134.
Id.: Part II: Plethysmographic Procedures of Clinical Importance. T. Winsor.—p. 149.
Action of Beta-Pyridil Carbinol (Roniacol) on Peripheral Circulation of Normal Persons and in Certain Pathologic States. C. M. Castro and L. de Soldati.—p. 165.

Cyclospasmol in Peripheral Vascular Disease.—A new vasodilator drug, Cyclospasmol (the 3, 5, 5-trimethylcyclohexanol ester of mandelic acid) was given a therapeutic trial over 12 to 18 months in 33 men and 17 women between the ages of 16 and 76. Of the 50 patients, 28 had arteriosclerosis obliterans, 5 had thromboangiitis obliterans, and 17 had various vasospastic disturbances. The drug was administered orally, starting with an initial dose of 100 to 200 mg. daily, while subsequently doses up to 600 to 1,000 mg. were given in advanced cases. No toxic or important undesirable side-effects were observed, even after prolonged administration. Of the 28 patients with arteriosclerosis obliterans, 17 (61%) obtained good results and 7 (25%) moderate results; and 4 (2 of whom had familial hypercholesterinemia) were therapeutic failures. Three of the five patients with thromboangiitis obliterans obtained good results, one was moderately improved, and one was a therapeutic failure. Eight of the 17 patients with vasospastic disturbances had excellent results, 4 were moderately improved, and 5 were therapeutic failures. The criteria of success were not only the clinical course but also objective symptoms, such as claudication time, healing of extensive gangrenous lesions, and skin temperature. The angina pectoris that was frequently associated with arteriosclerosis obliterans seemed to be favorably influenced by Cyclospasmol. During six months various patients with angina pectoris were, therefore, given alternately placebo tablets, 300 to 600 mg. of Cyclospasmol, 100 to 300 mg. of crystalline visammin (khellin), and combined Cyclospasmol and visammin tablets (one tablet containing 50 mg. of Cyclospasmol and 25 mg. of visammin three times daily). The combined tablets caused disappearance or a considerable decrease of anginal symptoms, but the treatment has been too short to warrant definite conclusions. As a result of his experience, the author states that Cyclospasmol is a valuable asset in the treatment of peripheral vascular diseases.

Annals of Allergy, Minneapolis

11:137-266 (March-April) 1953

Microscopic Observations of Intrahepatic Circulation of Living Guinea Pigs Before and During Anaphylaxis. W. S. Burrage and J. W. Irwin. —p. 137.
Hypothyroidism in Pediatric Allergy. W. A. Reilly.—p. 143.
*Atopic Dermatitis Caused by Inhalant Antigens and its Immunologic Therapy. H. E. Diamond.—p. 146.
ACTH in Gelatin: Clinical Results with Repository Adrenocorticotropic Hormone in Allergic Diseases. S. J. Levin.—p. 157.
Persistence of Histaminic Responses in the Human During Cholinesterase Administration. R. D. Barnard, H. T. Stanton Jr. and B. Goldman. —p. 170.
Whole Pollen Antigen Hydrochloride. G. E. Rockwell.—p. 175.
Food-Induced, Allergic Musculoskeletal Syndromes. W. Kaufman.—p. 179
Pollen Survey of West Texas. V. E. Friedewald.—p. 185.
Ménière's Disease: Case Report and Discussion. G. R. Laub.—p. 190.
Hay Fever in Immigrants. H. H. Shilkret and L. C. Lazarowitz.—p. 194.
Drug Tolerance in Asthma: Fatal Salicylate Poisoning from Physiologic Dose. G. L. Waldbott, K. E. Blair and R. McKeever.—p. 199.
Use of Chlor-Trimeton Maleate® Injectable in Blood Transfusions. D. B. Frankel and N. Weidner.—p. 204.
Respiratory Acidosis—Pathogenesis and Treatment. M. S. Segal, M. J. Dulfano, J. A. Herschfus and J. A. Shanks.—p. 206.
Hypoallergic Penicillin V (Pyribenzamine-Penicillin): Comparison of Results and Final Conclusions from All Studies. S. W. Simon.—p. 218.

Dermatitis Caused by Inhalant Antigens.—In over 20 years of practice in allergy Diamond was frequently confronted with eczematous dermatoses of obscure allergy. In recent years he observed an increasing number of patients who presented themselves primarily for the treatment of atopic dermatitis, and many of them came on the recommendation of older patients with respiratory complaints whose concomitant dermatoses had responded to treatment with antigens involved in the respiratory disorders. Of 236 consecutive new patients seen by the author from January, 1949, to July, 1952, 179 complained primarily of respiratory tract symptoms. Among these, the diagnosis of a concomitant atopic dermatitis was made in 23 instances (9.5% of the total). In the remaining 57 patients of this series the primary complaint was dermatological; 23 of these patients had atopic dermatitis, and 7 of the 23 also had bronchial asthma, allergic rhinitis, or hay fever. The author presents case histories that illustrate the improvement of atopic dermatitis coincidentally with the immunologic treatment of hay fever, bronchial asthma, or allergic conjunctivitis. From slowly accumulating experiences the author deduced the following concepts: 1. A high incidence of eczematous dermatoses is seen among subjects with allergic respiratory disease, such as hay fever and bronchial asthma. 2. The dermatoses often improve coincidentally with the treatment of the respiratory complaints by means of individually adjusted and, as a rule, small, doses of extracts from the antigens involved in the respiratory disorder. 3. Exacerbations of dermatitis caused by inhalants are observed following the injection of extracts from dust, pollens, molds, etc., for the purpose of testing for therapy. 4. Favorable results are obtained in the treatment of such skin lesions with concentrations of dust, pollens, or mold extracts in much smaller doses than those used in the treatment of respiratory complaints.

Annals of Internal Medicine, Lancaster, Pa.

38:647-912 (April) 1953

*Management of Malignant Hypertension. M. Sokolow and M. F. Schottstaedt.—p. 647.
Malignant Hypertension Associated with Unilateral Renal Artery Occlusion: Three Cases. E. G. Laforet.—p. 667.
Necrotizing Renal Papillitis. J. S. Silberstein and J. T. Paugh.—p. 689.
Perforation of Interventricular Septum Following Myocardial Infarction. V. F. Bond Jr., C. R. Welfare, T. N. Lide and R. L. McMillan. —p. 706.
*Natural History of Lupus Erythematosus Disseminatus. R. A. Jessar, R. W. Lamont-Havers and C. Ragan.—p. 717.
"Pararheumatic" Arthropathies. H. H. Friedman, S. Schwartz, M. Trubek and O. Steinbrocker.—p. 732.
Essential Hyperlipemia. C. R. Joyner Jr.—p. 759.
*Common Type of Vertigo Relieved by Traction of Cervical Spine. D. Davis.—p. 778.
Splenectomy in Rheumatoid Arthritis. C. L. Steinberg.—p. 787.
Further Studies on Electrocerebral Dysfunction and Use of Anticonvulsants in Labile Diabetes. M. Fabrykant.—p. 814.

Management of Malignant Hypertension.—According to Sokolow and Schottstaedt, the prognosis of malignant hypertension is no longer hopeless, particularly if modern treatment is instituted prior to the stage of severe renal impairment. Treatment should be instituted promptly after adequate investigation has excluded the presence of reversible conditions such as pheochromocytoma and unilateral atrophic pyelonephritis. The most effective medical management at the present time appears to be the use of hexamethonium by parenteral injection, combined with the oral administration of hydralazine, low sodium diet, and adequate attention to the emotional needs of the patient. The newer veratrum alkaloids, such as protoveratrine, are also of value. An adequate trial of hexamethonium given subcutaneously by the authors to 17 patients with malignant hypertension resulted in reversal of papilledema and clinical improvement in 10, including 2 with chronic glomerulonephritis and 2 with chronic pyelonephritis; in these 4 patients the creatinine clearance rates were between 33 and 57 cc. per minute prior to therapy. In patients whose creatinine clearance rates were less than 30 cc. per minute, renal failure progressed despite hexamethonium therapy. There were two patients in whom the addition of 300 mg. daily of hydralazine administered orally to 70 mg. of hexamethonium twice daily subcutaneously was of striking benefit after only modest improvement resulted from parenterally administered hexamethonium. A combination of hexamethonium given orally and hydralazine orally may prove to be as effective as the combination suggested above, but, in view of the results reported by Kilpatrick and Smirk, this remains to be proved. The patient should be under close medical supervision, preferably in the hospital, when the treatment with the new antihypertensive agents is instituted, and great care should be exercised to avoid hypotensive reactions. Prior to January, 1950, bilateral radical lumbodorsal sympathectomies were performed by the authors on eight patients. In six of these patients reversal of papilledema occurred. Death in uremia occurred in only one patient, who had subacute glomerulonephritis. The other five deaths were due to cardiac or cerebral lesions. Two patients are living 43 and 57 months after diagnosis. Of four other patients with malignant hypertension on whom sympathectomies were performed after January, 1950, two who showed temporary improvement and reversal of papilledema died one year and 22 months, after the operation. The other two patients had reversal of papilledema and were alive and well 23 months and 6 months after the surgical intervention. It is apparent that sympathectomy in the early stages of malignant hypertension in patients with adequate renal function is an effective method of treatment; the accelerated phase of the disease is reversed in 30 to 50% of the patients.

Lupus Erythematosus Disseminatus.—In the past 15 years, 44 patients (group A) with lupus erythematosus disseminatus were observed at Columbia University College of Physicians and Surgeons and at the Presbyterian Hospital in New York and data of 279 additional patients (group B) were collected from the literature of 1948 to 1952. Female patients made up 98% of the first group and 85% of the second group. The age of onset varied from 5½ to 60 years in group A, but the peak incidence in both groups was in the second, third, and fourth decades, with an approximately equal distribution in each decade. Only 3 of the authors' 44 patients had a family history of rheumatic disease, while this feature was not evaluated in the cases collected from the literature. Arthritis and arthralgia were common and were noted in 77% of group A and in 68% of group B. Cardiac manifestations were seen frequently in both groups. Respiratory tract involvement was less frequently observed in both groups. Transient chest pain was a prominent complaint, though less frequently accompanied by objective findings. Generalized enlargement of lymph nodes was noted repeatedly in patients of both groups. Gastrointestinal complaints were prominent in 36% of the group A patients, and in a somewhat smaller percentage of the group B patients. Peripheral and facial edema was present more frequently in group A than in group B. Raynaud's phenomenon was observed in 16% of the group A patients, while the incidence of these changes in group B was low. Eyeground changes were infrequently noted in group B, but occurred in 9 (20%) of the 44 patients. Anemia was common and was frequently apparent at the onset in both groups. Elevation of the erythrocyte sedimentation rate to more than 50 mm. in the first hour was present in 86% of the group A patients and in an approximately similar percentage of group B. Albuminuria of greater than 1+ was seen in 70% of the group A patients, and in 58% of group B. Electrocardiographic changes indicative of myocardial or pericardial disease were observed in both groups. Of the 44 group A patients, 31 died and 13 (30%) were alive more than five years after the onset of the disease; 22% of 103 patients who had been followed for more than five years were alive in group B. As a result of these observations, the authors state that, while the prognosis of lupus erythematosus disseminatus is unfavorable, approximately 22% of the patients remain alive for periods in excess of five years. At least 6 of the 44 patients have been relatively asymptomatic for periods ranging for from 4 to 20 years. This fact must be considered in an evaluation of a therapeutic regimen. Although the usefulness of corticotropin (ACTH) and cortisone in the palliative therapy of the patients with lupus erythematosus disseminatus cannot be denied, it will remain for further long-term studies to determine the effect of these hormones on the life spans of these patients.

Postural Vertigo Relieved by Traction of Cervical Spine.—In a reported group of 43 patients with chest pain as the chief complaint, a history of vertigo was elicited in 21. In some, this symptom had recurred over a period of years. Generally it was mild and transient, but in several it was severe and, at times, incapacitating. In addition to chest pain and vertigo, other manifestations, such as suboccipital headache, shoulder girdle pain, limitation of head rotation, spasm and tenderness of the posterior cervical muscles, and tenderness over the cervical or dorsal spine and in the parasternal region, were often present. Detailed reports are presented of seven patients between the ages of 38 and 70 years with vertigo as a major complaint. The most striking feature was the precipitation of the attack of vertigo by sudden turns of the head and neck from long-maintained positions, and almost regularly by the act of getting out of bed in the morning. The attacks of actual vertigo were usually of very short duration, lasting less than a minute and often only a few seconds, but they recurred frequently. After some bodily activity, such as dressing or walking, the tendency to recur was lessened. An unsteadiness of gait persisted in most instances a few minutes, in some for hours, and in a few for days. Nausea and occasionally vomiting accompanied the vertigo. In several instances attacks were reproduced by having the patient get up suddenly from the examining table. Most of these attacks were interrupted and recurrences prevented or lessened by cervical traction and exercises. The manual method in the reclining position and the overhead method of Hanfling were used. Evidence that this vertigo is of cervical origin may be summarized as follows: (1) the striking response to traction and exercises, as shown by the immediate effect on the attack itself and the prevention of recurrences; (2) the close relation of the attacks to a prolonged position of the cervical spine, the effect of sudden changes from this position, and the reduction of attacks after bodily activity has been resumed; (3) the high incidence of the other manifestations of the cervicodorsal radiculitis; and (4) the absence of clinical manifestations of intracranial disease, cerebral arteriosclerosis and disturbances of the labyrinth. The radicular distribution of changes in skin sensation in patients with shoulder girdle and chest pain in this condition suggests nerve root involvement, and a similar upper cervical mechanism may be assumed as the basis for the vertigo, which is effectively treated by appropriate orthopedic measures.

Arkansas Medical Society Journal, Fort Smith

49:193-212 (April) 1953

Ectopic Pregnancy: Analytical and Diagnostic Features. M. R. McCaskill, T. Trieber and E. T. Ellison.—p. 193.
Recent Advances of Present Trends in Cancer Treatment and Research: *Surgery*. G. T. Pack.—p. 197.

Delaware State Medical Journal, Wilmington

25:77-102 (April) 1953

The Hernia Problem: Confessions and Impressions. J. C. Pierson.—p. 77.
Tissue Electrolyte. Abnormalities in a Case of Chronic Congestive Heart Failure. R. A. Neubauer and J. W. Abbiss.—p. 80.
Treatment Complications in Case of Lymphatic Leukemia with Secondary Hemolytic Anemia. R. W. Frelick and O. Sluzar.—p. 83.
Breast Lesions: Review and Classification. R. M. Zwicker.—p. 88.
Cystadenocarcinoma of Ovary: 20 Years Survival After Known Peritoneal Metastases: Case Report. E. A. Mekanik.—p. 95.
Bronchogenic Carcinoma: Report of 149 Cases. E. Y. Gledhill.—p. 97.

Florida Medical Association Journal, Jacksonville

39:791-862 (May) 1953

Adams-Stokes Syndrome. S. Grau.—p. 811.
Rational and Scientific Method for Evaluating Fluid and Electrolyte Therapy Postoperatively. J. H. Kay and A. Ochsner.—p. 815.
Review of Effects of Various Drugs on Human Cerebral Circulation and Metabolism. P. Scheinberg.—p. 817.
Intramedullary Fixation of Fractures of Long Bones. J. T. Ellis and S. W. Windham.—p. 820.

Illinois Medical Journal, Chicago

103:197-260 (April) 1953

Endocrine Disorders in Office Practice. J. H. Hutton.—p. 235.
Obstetrical Hemorrhage. W. C. Scrivner.—p. 240.
Practical Office Gynecology. W. J. Reich and M. J. Nechtow.—p. 244.
*3-o-toloxy 1, 2 Propanediol as an Adjunct in Treatment of Drug Addiction. J. J. McLaughlin and L. S. Schlan.—p. 247.
Intussusception. W. F. Jacobs.—p. 250.

Treatment of Drug Addiction.—In a trial on 63 psychiatric patients it had been found that mephenesin (Tolserol) reduced or abolished gross tremor, relieved severe anxiety, and calmed hypomanic patients. In two drug addicts the new compound appeared to abolish the withdrawal symptoms. This report deals with observations on 20 drug addicts to whom the new drug was given as an adjunctive to alleviate or control some of the withdrawal symptoms. All of the addicts were men and used the drugs intravenously. All but one who used morphine were addicted to heroin, and some also, used cocaine. The 20 patients were divided in two groups: a group of 12 being given mephenesin as an adjunctive, and a group of 8 serving as controls and receiving no mephenesin. Methadone in decreasing amounts was substituted for the addictive drug in both groups. The initial dose of methadone varied from 10 to 30 mg. every four hours and depended upon the duration of addiction, amount of drug used, emotional stability, age, weight, and general physical condition of the patient. The optimal dose of mephenesin appeared to be 1 gm. every three hours. It was found that in patients receiving the adjunctive therapy withdrawal can be more rapid; muscle twitchings, cramps, and tremor can be controlled; and there is less anxiety. Patients are able to carry on a more normal existence, taking part in group activities and performing light physical duties; insomnia appears to be decreased. To be effective, however, the adjunctive treatment must be given early, before withdrawal symptoms appear.

Industrial Medicine and Surgery, Chicago

22:93-140 (March) 1953. **Partial Index**

Allergy and Occupational Diseases. E. Sidi, C. Albahary and R. Longueville.—p. 93.
Incidence of Respiratory Allergy as Disclosed in Survey of 37,497 Persons, 1949-1950. W. B. Blanton, E. C. Matthews, M. T. Tobin and S. E. Shanks.—p. 99.
Anomalies Versus Fractures. P. Thurber Jr.—p. 103.
Occupational Leukoderma, with Report of Cases. J. V. Klauder and J. M. Kimmich.—p. 106.
*Barbers' Disease. W. Waris.—p. 111.

Barbers' Disease.—Waris presents the histories of three barbers in whom a sinus developed in the web between two fingers. He lists data on these cases and eight others that had previously been described in the literature. Most of these sinuses, which in previous reports were usually referred to as "pilonidal" sinuses because they contained hair, were on the right hand. They were more commonly in the web between the third and fourth fingers and less often between the second and third or fourth and fifth fingers. Hair clippings sometimes penetrate into the skin of the finger webs of barbers and cause a foreign body granuloma and cyst formation. A sinus of this kind containing short hairs may be quite harmless for many years before a secondary infection causes suppuration and surgical treatment is needed. These finger web sinuses are an occupational disease of barbers, but they are rather rare. It seems possible that the movements of the barber's fingers rub hair clippings into the finger web in such a way that the hair bores into the skin. Furthermore, the constant opening and shutting of the web may produce a negative pressure that promotes penetration of hair into the skin.

Journal of Applied Physiology, Washington, D. C.

5:471-566 (March) 1953. Partial Index

Oxygen Toxicity: Effects in Man of Oxygen Inhalation at 1 and 3.5 Atmospheres Upon Blood Gas Transport, Cerebral Circulation and Cerebral Metabolism. C. J. Lambertsen, R. H. Kough, D. Y. Cooper, G. L. Emmel and others.—p. 471.
Quantitation of Beat-to-Beat Changes in Stroke Volume from Aortic Pulse Contour in Man. H. R. Warner, H. J. C. Swan, D. C. Connolly and others.—p. 495.
Effects of Atropine on Heart Rate and, Oxygen Intake in Working Man. S. Robinson, M. Pearcy, F. R. Brueckman and others.—p. 508.
Analysis of One-Stage Test for Prothrombin Time. C. A. Owen Jr. and J. L. Bollman.—p. 515.
Transcapillary Exchange Rates of Deuterium Oxide and Thiocyanate in Forearm of Man. E. D. Freis, T. F. Higgins and H. J. Morowitz. —p. 526.
Finger Numbness in Very Cold Winds. N. H. Mackworth.—p. 533.
Effects of Posture and of Neck Compression on Outputs of Water, Sodium and Creatinine. V. Netravisesh.—p. 544.
Ratio Between True and Apparent Creatinine in Sweat. D. E. Bass and I. T. Dobalian.—p. 555.
Method for Rapid Measurement of Skin Temperature During Exposure to Intense Thermal Radiation. J. D. Hardy.—p. 559.

5:567-645 (April) 1953

Biochemical and Hematologic Characteristics of Blood from Hepatic Portal Vein in Man. H. R. Bierman, L. P. White, K. H. Kelly and H. L. Steinbach.—p. 567.
Comparison of Effects of Certain Blood Alkalinizers and Glucose Upon Competitive Endurance Performance. W. R. Johnson and D. H. Black. —p. 577.
Relationship Between Mouth, Skin and Arterial Blood Temperature. G. H. Eurman and M. Mendlowitz.—p. 579.
Effect of Moderate Exercise on Electrocardiogram in Healthy Young and Middle-Aged Men. E. Simonson.—p. 584.
Age Changes in Maximum Conduction Velocity of Motor Fibers of Human Ulnar Nerves. A. H. Norris, N. W. Shock and I. H. Wagman. —p. 589.
Sweating Response to Local Heat Application. F. B. Benjamin.—p. 594.
Prevention of Airsickness Among Airborne Troops. H. I. Chinn, W. R. Gammon and M. E. Frantz.—p. 599.
Carbon Dioxide and Respiratory Regulation at Altitude. F. G. Hall. —p. 603.
Adaption to High Altitudes: Changes in Lung Volumes During First Seven Days at Mt. Evans, Colorado. S. M. Tenney, H. Rahn, R. C. Stroud and J. C. Mithoefer.—p. 607.
Obstructive Apnea in Artificially Hyperventilated Subjects During Sleep. L. F. Peltier.—p. 614.
Effect of Temperature Change on pH of Human Urine. L. G. Wesson Jr. —p. 619.
Effect of Modified Fluid Gelatin on Renal Function. A. J. Michie, C. E. Koop, W. S. Blakemore and M. C. Ragni.—p. 621.
Effect of Repeated Infusions of Dextran on Renal Function. A. J. Michie and M. C. Ragni.—p. 625.
Relation of Grip Strength and Grip-Strength Endurance of Age. W. E. Burke, W. W. Tuttle, C. W. Thompson and others.—p. 628.
*Specific Dynamic Action of Protein in Men Past 60 Years of Age. W. W. Tuttle, S. M. Horvath, L. F. Presson and K. Daum.—p. 631.

Specific Dynamic Action of Protein in the Aged.—Since widely differing specific dynamic action values in different subjects have been reported, it was thought that the differences might be related to the ages of the subjects. The experiments reported here were done to elucidate any possible role that age may play in the specific dynamic action of protein. The responses of old men (mean age 77 years) and young men (mean age 24 years) to the ingestion of a standard protein test meal, which yielded 25 gm. of protein, were compared. The specific dynamic action, expressed as total excess oxygen utilization, was essentially the same in both age groups. The older subjects exhibited a slower initial response to the protein meal but had both higher peak values and increased excess oxygen utilization during the second half of a 4.5 hours test period.

Journal of Aviation Medicine, St. Paul

24:99-164 (April) 1953. Partial Index

Attainment of Specialty Recognition for Aviation Medicine: Role of Interim Board in Petitioning for Certification. R. J. Benford.—p. 101.
Studies of Adrenocortical Function in Long-Distance Fliers: Preliminary Report. J. P. Gofton and S. D. McGrath.—p. 107.
Effect of Moderate Altitude Upon Human Gastric Emptying Time. E. Shocket, M. M. Jackson and H. C. Dyme.—p. 113.
Evaluation of Changes in Eosinophil Levels in Studies of Adrenocortical Function and Stress. J. P. Gofton, B. F. Graham, S. D. McGrath and R. A. Cleghorn.—p. 122.
Study of Eosinophil Response to Exercise in Man. R. F. Wake, B. F. Graham and S. D. McGrath.—p. 127.
Microscopical Observations of Peripheral Circulation at Simulated High Altitudes. B. J. Sullivan and L. D. De Gennaro.—p. 131.
Spectacles in Jet Flying. P. H. Evans and J. W. Peachy.—p. 138.
Clinical Research on Subject of Test on Aviator's Fatigue. R. Monjauze, F. Plas, G. and J. Verdeaux and others.—p. 143.

Journal of Bacteriology, Baltimore

65:355-484 (April) 1953. Partial Index

Enzymatic Changes During Sporogenesis in Some Aerobic Bacteria. W. A. Hardwick and J. W. Foster.—p. 355.
Microbacterium Thermosphactum, Spec Nov; Nonheat Resistant Bacterium from Fresh Pork Sausage. R. A. McLean and W. L. Sulzbacher. —p. 428.
Relationships of Viral Content of Living and Dead Whole Eggs Inoculated with Various Concentrations of Psittacosis Virus. M. K. Nadel and O. N. Fellowes.—p. 449.
Role of Bacterial Resistance in Antibiotic Synergism and Antagonism. M. Klein and S. E. Schorr.—p. 454.
Investigations on Biosynthesis of Citrovorum Factor by Lactic Acid Bacteria. D. Hendlin, L. K. Koditschek and M. H. Soars.—p. 466.
Synthesis of Glutamic Acid and Glutamyl Polypeptide by Bacillus Anthracis: III. Factors Affecting Peptide Production in Synthetic Liquid Media. C. B. Thorne, C. G. Gómez, G. R. Blind and R. D. Housewright.—p. 472.

Journal Clin. Endocrin. & Metab., Springfield, Ill.

13:383-488 (April) 1953

Biologic Titration of Diethylstilbestrol Against Activity of Prostatic Cancer: Effect on Serum Aldolase. R. Baker, D. Govan, J. Huffer and J. Cason.—p. 383.
*Does a Large Intake of Potassium Modify Metabolic Effects of ACTH (Corticotropin). in Man? L. L. Bennett, G. W. Liddle and R. C. Bentinck.—p. 392.
Congenital Testicular Deficiency: II. Defective Sertoli Cell Differentiation in Hypogonadism of So-Called "Obscure Origin." A. R. Sohval and L. J. Soffer.—p. 408.
Increased Urinary Estrogen Excretion Associated with Adrenal Tumors: Report of Four Cases. F. C. Dohan, E. Rose, J. W. Eiman and others. —p. 415.
Disappearance of Infused Amino Acids from Plasma of Hospitalized Control and Addisonian Subjects. R. N. Cagan, R. L. Klein and L. Loewe.—p. 429.
Effect of Orally Administered Ascorbic Acid and/or l-Cystine on Urinary Steroid Excretion. J. W. Goldzieher and J. S. Edlin.—p. 436.
Determination of Protein-Bound Iodine by Dry Ashing. H. Brown, A. M. Reingold and M. Samson.—p. 444.
Epilation by Electrocoagulation: Improvements in Technic. M. L. Niedelman.—p. 451.
Changing Concepts in Thyroid Physiology and Therapy. W. O. Thompson.—p. 457.

Modification of the Effects of Corticotropin by Potassium.—It is evident that the potassium-depleting, sodium-retaining, diabetogenic, and catabolic effects of corticotropin are undesirable effects clinically. Studies were undertaken in an effort to determine to what extent the biological activity of corticotropin in man might be modified by the simultaneous administration of large amounts of potassium salts. Five of the seven patients studied had active generalized rheumatoid arthritis, one had disseminated lupus erythematosus, and one had hyperinsulinism. Short-term and long-term studies were carried out. The patients received corticotropin in doses up to 100 units daily and, both separately and in combination, large amounts of potassium salts by mouth (up to 360 mEq. per day of potassium acetate). In most instances six day balance periods were employed. No untoward symptoms occurred, except for occasional nausea. A patient to whom corticotropin had been given for three months and in whom hypokalemia developed did not retain extra potassium when he was given 120 mEq. per day of supplemental potassium while corticotropin therapy was continued. These large doses of potassium salts administered concurrently with corticotropin did not modify the antirheumatic effects of corticotropin. Other effects of corticotropin that were not prevented included uric acid diuresis, eosinopenia, a rise in urinary nitrogen levels, a rise in fasting blood sugar levels, and a rise in 17-ketosteroid excretion. On the other hand, the effects of corticotropin upon electrolyte metabolism were definitely modified. The sodium retention that occurs when corticotropin therapy is initiated was prevented or diminished by the concurrent administration of adequate amounts of potassium salts. Starting the administration of potassium salts after corticotropin therapy was underway induced prompt diuresis of sodium. The sodium diuresis that ordinarily follows withdrawal of corticotropin therapy may not occur in patients who are receiving potassium salts concurrently. A transient (one to two days) positive phosphorus balance was produced by the administration of large doses of potassium salts.

Journal of Clinical Nutrition, Allentown, Pa.

1:179-266 (March-April) 1953

Lack of Avitaminosis Among Alcoholics: Its Relation to Fortification of Cereal Products and General Nutritional Status of the Population. W. G. Figueroa, F. Sargent, L. Imperiale and others.—p. 179.
Pyridoxine Deficiency in Human Infant. S. E. Snyderman, L. E. Holt Jr., R. Carretero and K. Jacobs.—p. 200.
Arteriovenous Glucose Differences, Metabolic Hypoglycemia and Food Intake in Man. T. B. Van Itallie, R. Beaudoin and J. Mayer.—p. 208.
*Use of Oral High Fat, High Calorie Emulsion for Total Feeding. W. J. Kuhl Jr., M. I. Grossman and C. F. Consolazio.—p. 218.
Effect Upon Serum Cholesterol and Phospholipids of Diets Containing Large Amount of Vegetable Fat. L. W. Kinsell, G. D. Michaels, J. W. Partridge and others.—p. 224.

Oral Administration of High Caloric Fat Emulsion for Total Feeding.—This study was undertaken to ascertain whether a high calorie, high fat liquid feeding could be administered as the sole source of feeding, and if this would be accompanied by gain in weight, restoration of positive nitrogen balance, and minimal alteration in normal metabolism. Six patients with fracture of the mandible and wiring received a high calorie liquid feeding, consisting primarily of a 40% emulsion of peanut oil, to which was added a protein concentrate and vitamins and minerals. In the preparation 100 gm. of protein concentrate, which also contained vitamins and minerals, was added to 1,000 ml. of the fat emulsion; 100 mg. of ascorbic acid, 4.0 gm. of sodium chloride as an isotonic solution, and 85 mg. of iron as ferric ammonium citrate were added. The preparation was mixed in a blender and refrigerated until consumed. Five of the patients consumed the arbitrarily determined amount of 1,000 ml. of the fat emulsion and supplements daily in divided feedings, which provided 4,370 calories. The sixth patient varied his daily intake over the period of study, beginning with a smaller amount of the preparation. The five patients gained weight while receiving the fixed amount of 1,000 ml. of fat emulsion. The weight gain ranged from 2.75 to 12.25 lb. (1,247 to 5,528 gm.) in from 12 to 24 days. The average daily weight gain was 0.4 pounds (181 gm.). Fecal fat excretion increased 7.68 gm. above the control level. No consistent changes occurred in fasting blood levels of total or neutral fat, phospholipid, cholesterol, serum total protein or albumin/globulin ratio, nonprotein nitrogen, fasting blood sugar, or carbon dioxide content.

Journal of Experimental Medicine, New York

97:467-589 (April) 1953. Partial Index

In Vitro Production of New Types of Hemophilus Influenzae. G. Leidy, E. Hahn and H. E. Alexander.—p. 467.
Osmotic Homeostasis Maintained by Mammalian Liver, Kidney, and Other Tissues. E. L. Opie and M. B. Rothbard.—p. 483.
Effect of Temperature on Growth of Virus-Induced Frog Carcinoma: II. Temperature Coefficient of Growth in Vitro. B. Lucké, L. Berwick and P. Nowell.—p. 505.
Observations Concerning Production and Excretion of Cholesterol in Mammals. IX. Mechanism of Hypercholesteremic Effect of Cholic Acid. S. O. Byers, M. Friedman, M. W. Biggs and B. Gunning.—p. 511.
Induced Malignancy in Cells from Rat Myocardium Subjected to Intermittent Anaerobiosis During Long Propagation in Vitro. H. Goldblatt and G. Cameron.—p. 525.

Journal of Immunology, Baltimore

70:331-434 (April) 1953

Specific White Cell Lysis Produced by Combination of Rabbitt Antiserum to Purified Protein (Ovalbumin, Bovine Gamma Globulin) with Homologous Antigen. Role of Non-Precipitating Antibody. B. H. Waksman.—p. 331.
Comparative Retention of Antigen in Skin of Immune and Normal Rabbits as Determined with Egg Albumin Labelled with Radioactive Iodine. L. Korngold, G. L. Stahly, M. C. Dodd and W. G. Myers.—p. 345.
Stability of Chick Embryo Yellow Fever Vaccine During Storage. R. G. Hahn and J. C. Bugher.—p. 352.
Origin of Fecal Antibody and its Relationship to Immunization with Adjuvant. M. E. Koshland.—p. 359.
Effect of High Intensity Electron Bursts on Antibodies. F. R. Traub, A. Brasch and W. Huber.—p. 366.
Molecular Weight of Antigen-Antibody Complex. E. L. Becker.—p. 372.
Effects of Spleen Shielding and Subsequent Splenectomy Upon Antibody Formation in Rats Receiving Total-Body X-Irradiation. R. W. Wissler, M. J. Robson, F. Fitch and others.—p. 379.
Some Effects of Formalin on Serological Activity of Crustacean and Mammalian Sera. C. A. Leone.—p. 386.
Antigenic Variation of Influenza B Viruses, Demonstration of Antigenic Spectrum by Use of Titer Ratios. W. S. Jordan Jr. and S. G. Gaylin.—p. 393.
Characteristics of Antibiotic-Producing Strains of Ocular Bacterial Flora. S. P. Halbert, L. Swick and C. Sonn.—p. 400.
Altered Reactivity of Mice After Immunization with Hemophilus Pertussis Vaccine. L. S. Kind.—p. 411.
Relation of Incubation Period and Secondary Immune Response to Lasting Immunity to Infectious Diseases. C. M. MacLeod.—p. 421.
Bio-Assay of Four Tetanus Toxoids (Aluminum Precipitated) in Mice, Guinea Pigs and Humans. J. Ipsen Jr.—p. 426.

Journal Lab. and Clinical Medicine, St. Louis

41:499-662 (April) 1953. Partial Index

Biological Studies with Arsenic^{76}: IV. Histopathologic Effect of Arsenic^{76} Upon Hematopoietic Tissues of Patients with Leukemia. M. Block, L. O. Jacobson and W. Neal.—p. 499.
Rate of Formation of Nondiffusible (Organic) Fraction of I^{131} in Plasma Correlated with Apparent Thyroid State. W. E. White.—p. 516.
Radioactive Iodine-Labeled Fat. M. C. Hoffman.—p. 521.
Bone Marrow in Metastatic Malignant Melanoma. A. G. Motulsky and R. J. Rohn.—p. 526.
Influence of Roentgen Rays Upon the Development of Mouse by Local Irradiation of Some Parts of the Body. V. V. Brunst and F. H. J. Figge.—p. 534.
Mechanism of Effect of Changes in Blood Osmotic Pressure on Cerebrospinal Fluid Pressure. H. W. Ryder, F. F. Espey, F. D. Kimbell and others.—p. 543.
Cross-Resistance in Staphylococci and Effect of Combinations of Antibiotics on Resistant Strains. B. T. Miyahara, K. Cariker and W. E. Clapper.—p. 550.
Effect of Bacterial Pyrogen Upon Experimental Cardiovascular and Renal Lesions of Anaphylactic Hypersensitivity. I. L. Bennett Jr., L. B. Guze and E. Roberts.—p. 559.
Method of Quantitating 1-Hydrazinophthalazine in Body Fluids. H. M. Perry Jr.—p. 566.
*Influence of Antihistaminic Agents on Erythrocyte Agglutination and Related Phenomena. S. P. Lucia, M. L. Hunt and H. R. Bierman.—p. 574.
Effect of Brain Fraction on Serum Cholesterol and Serum Lipid Pattern. R. B. Gordon, S. C. Kraft and R. J. Jones.—p. 583.
Beneficial Effects of Intermittent Dietary Regimes on Tendency to Atherosclerosis. S. Rodbard, C. Bolene-Williams, R. Pick and L. N. Katz.—p. 587.
*Nitrogen Metabolism and Liver Histology During Aureomycin Administration in Patients with Hepatic Disease. W. W. Faloon, J. W. Noll and J. T. Prior.—p. 596.
Effects of Large Doses of Cortisone on Testicular Morphology and Urinary Gonadotropin, Estrogen, and 17-Ketosteroid Excretion. W. O. Maddock, J. D. Chase and W. O. Nelson.—p. 608.
Bilirubin and Protein in Cerebrospinal Fluid of Jaundiced Patients with Severe Liver Disease With and Without Hepatic Coma. D. S. Amatuzio, L. J. Weber and S. Nesbitt.—p. 615.

Influence of Antihistaminic Agents on Erythrocyte Agglutination.—Reduction in the incidence of unfavorable transfusion reactions, which is important to leukemic patients and others requiring frequent and multiple transfusions, may be secured by adding certain antihistaminic agents to whole blood before its infusion. A significant retardation of the specific agglutination in vitro of group A and group B erythrocytes was noted when diphenhydramine (Benadryl) was added to anti-A and anti-B serums, and this led to further study of the inhibiting effect of diphenhydramine and other antihistaminic agents on isoagglutination of human blood cells in vitro. Tests of eight agents showed that diphenhydramine and pyrilamine maleate apparently had the greatest inhibitory effect on isoagglutination.

Methapyrilene (Histadyl) and tripelennamine (Pyribenzamine) exerted a slight inhibitory action, and cyclopentamine (Clopane) hydrochloride, antazoline (Antistine), a mixture of phenylephrine (Neo-Synephrine) and Thenfadil (*N*-[2-dimethylaminoethyl]-*N*-2-pyridyl-3-thenylamine), and dimenhydrinate (Dramamine) had essentially no effect. The use of diphenhydramine and tripelennamine in vivo appears to protect the recipient more effectively than can be accounted for by the results obtained in vitro. The isoagglutination reaction is retarded and weakened when antihistaminic agents are used in vitro, but eventual clumping of the cells is not prevented; in vivo, however, the retardation is apparently sufficient to overcome minor clumping due to atypical antibodies, thus preventing the characteristic clinical responses that usually follow. Sensitized erythrocytes from an infant with erythroblastosis fetalis were used to test the effect of antihistaminic agents on the anti-human-globulin (Coombs') reaction. Agglutination appeared to be retarded by pyrilamine maleate, tripelennamine, and dimenhydrinate. Only slight retardation was observed with cyclopentamine hydrochloride and the mixture of phenylephrine and Thenfadil, and the effect of the other agents, methapyriline, antazoline, and diphenhydramine, could not be evaluated because they produced hemolysis of the sensitized erythrocytes.

Nitrogen Metabolism and Liver Histology During Aureomycin Treatment.—Three patients with alcoholic fatty cirrhosis and one with convalescent hepatitis receiving aureomycin therapy were studied in an effort to determine the effect of aureomycin on nitrogen metabolism, liver histology, and liver function tests. Urine nitrogen excretion was increased in all four patients while they were receiving aureomycin, and the nitrogen balance became negative in two, although their diet remained constant. Methionine deficiency has been suggested as the cause of aureomycin-induced nitrogen loss, but simultaneous administration of methionine had no effect on nitrogen excretion in these patients. Fatty infiltration of the liver was observed after two weeks of aureomycin therapy in one patient and was not reversed when methionine was administered concurrently for another two weeks. Biopsy of the liver 10 days after administration of aureomycin was stopped showed almost complete disappearance of the fatty changes. Liver histology was improved or unchanged in the other three patients, in whom aureomycin therapy was limited to brief periods (five to seven days). Individual variations in the susceptibility of patients to fatty infiltration may account for the varying findings reported in this and other studies. No serious hepatic deterioration under aureomycin therapy was shown by any of the functional tests employed, but its prolonged use in conditions in which protein anabolism is therapeutically desirable would probably be injudicious.

Journal Pharmacology & Exper. Therap., Baltimore

107:403-536 (April) 1953

Pharmacology of N-Benzyl-β-Chloropropionamide (Hibicon), A New Anticonvulsant. B. K. Harned, R. W. Cunningham, M. C. Clark and others.—p. 403.

Nicotinolytic Drugs: II. Action of Adrenergic Blocking Agents on Nicotine-Induced Tremors. R. L. Cahen, J. M. Thomas and K. M. Tvede.—p. 424.

Effects of Thiopental and Pentobarbital on Voluntary Muscle. C. P. Kraatz, M. I. Gluckman and H. L. Shields.—p. 437.

Pharmacology of Vinyl Ethynyl Carbinols—New Class of Central Nervous System Depressants. S. Y. P'An, J. F. Gardocki, M. Harfenist and A. Bayley.—p. 459.

Studies on Toxicity and Pharmacological Actions of Symmetrical and Unsymmetrical Diethyl Bis (Dimethylamido) Pyrophosphate. K. P. DuBois, J. Doull, A. J. Okinaka and J. M. Coon.—p. 464.

Effect of Alloxan on Liver Desoxyribosenucleic Acid (DNA). A. D. Bass, H. F. Diermeier, H. S. Di Stefano and E. J. Cafruny.—p. 478.

Correlation Between Pharmacological Responses to Benzoylcholine Methacholine and Acetylcholine and Activity of Cholinesterases. T. Koppanyi, A. G. Karczmar and G. C. Sheatz.—p. 482.

Further Studies on Intravenously Injected Cholinesterase Preparations. A. G. Karczmar, T. Koppanyi and G. C. Sheatz.—p. 501.

Fate of Caffeine in Man and Method for its Estimation in Biological Material. J. Axelrod and J. Reichenthal.—p. 519.

Actions and Addiction Liabilities of Dromoran Derivatives in Man. H. Isbell and H. F. Fraser.—p. 524.

Journal of Thoracic Surgery, St. Louis

25:329-434 (April) 1953

*Results of Thoracoplasty for Pulmonary Tuberculosis 11 to 16 Years After Operation: Complete Follow-Up Report. A. H. Aufses and M. S. Harte.—p. 329.

Pulmonary Hematoma. J. M. Salyer, H. A. Blake and J. H. Forsee.—p. 336.

Volvulus of Lobe of Lung as Complication of Diaphragmatic Hernia: Case Report. H. T. Ransdell Jr. and R. G. Ellison.—p. 341.

Solitary Pleural Mesotheliomas. H. W. Benoit Jr. and L. V. Ackerman.—p. 346.

Bronchial Arteries: IV. Experimental Bronchial Arterial Occlusion and Bronchial Obstruction. F. H. Ellis Jr., J. H. Grindlay and J. E. Edwards.—p. 358.

Examination of Pleural Fluid for Carcinoma Cells. G. Grimsley, J. R. McDonald, O. T. Clagett and H. W. Schmidt.—p. 366.

Delayed Traumatic Rupture of Esophagus. W. H. Muller Jr., F. X. Byron and H. W. Power.—p. 371.

*Repair by Full Thickness Skin Graft of Penetrating Wounds of Intrathoracic Trachea: Report of Case. J. M. Hanner and S. H. Cohen.—p. 380.

*Tracheal Resection and Replacement with Prosthesis. R. L. Craig, G. W. Holmes and E. J. Shabart.—p. 384.

Modified Button Technique for Closure of Experimental Interauricular Septal Defects. H. Swan and B. D. Stewart.—p. 397.

Pancoast Syndrome Due to Bronchiogenic Carcinoma: Successful Surgical Removal and Postoperative Irradiation: Case Report. W. M. Chardack and J. D. MacCallum.—p. 402.

Device for Experimental Creation of Ventricular Septal Defects: Preliminary Report. M. Taufic and F. J. Lewis.—p. 413.

Physiologic Studies Following Thoracic Surgery: III. Ventilatory Studies in Immediate Postoperative Period. F. E. Martin and W. W. Stead.—p. 417.

Eventration of the Diaphragm Repaired Utilizing Tantalum Mesh. M. C. Sanford—p. 422.

Neurofibromatosis with Intrathoracic Neurofibromas of Vagus Nerve: Report of a Case Associated with Pectus Excavatum. F. Gerbode and G. S. Marguiles.—p. 429.

Late Results of Thoracoplasty for Pulmonary Tuberculosis.—Thoracoplasty was done for pulmonary tuberculosis in 90 patients between 1935 and 1940 who were followed for 11 to 16 years. Six died postoperatively and four within the first year after the intervention. In the 80 patients living in 1941, the disease had been arrested in 64 and not arrested in 16. In 57 of the 64 patients the disease has remained inactive up to the present time. One patient with negative sputum committed suicide two years after the operation. Two patients who had inactive disease for long periods died of nontuberculous causes. Four patients had reactivation of their tuberculosis, but the disease has again become inactive in one. Of the 16 patients who still had positive sputums at the time of the first report, 6 had late sputum conversion, and subsequently the disease has remained inactive. One patient is clinically well, with occasional positive cultures, and is classified as having arrested disease. Active tuberculosis persisted in nine patients; eight of these died from 4 to 10 years after the operation and one is still alive. Thus 66 of the 80 patients alive in 1941 are still alive, 63 with inactive disease, one with arrested disease, and two with active tuberculosis. Four of the 14 who died had inactive disease at the time of death. Today, with the addition of the antibiotics, thoracoplasty performed on a selected group of patients should yield a very high percentage of early good results that can be expected to be maintained over a long period.

Repair of Wounds of Intrathoracic Trachea.—A 20-year-old private in the marine corps of the republic of Korea was struck by a bullet that entered his body in the left supraclavicular region and emerged through the right eighth intercostal space posteriorly. The patient had a right tension pneumothorax with pronounced mediastinal shift to the left. Endotracheal intubation was carried out and a posterolateral thoracotomy was performed through the eighth interspace. The left lung was almost completely collapsed, and it was soon apparent that a large defect was present in the trachea just proximal to the coryna. On careful dissection of this area two perforations were noted: an anterior longitudinal defect 2 cm. in length just proximal to the coryna, and another of the same size and type, just proximal to the anterior defect, on the esophageal aspect of the trachea. Despite these defects sufficient pulmonary aeration had prevailed to sustain life 24 hours. The vagus nerve was carefully dissected away, and the anterior tracheal defect was closed with interrupted silk sutures. The posterior defect was difficult to approach for suturing. A full thickness skin graft, large enough to encircle the posterior defect as well as to allow for retraction, was obtained from the patient's anterior abdominal wall. The graft was everted and passed around the trachea with the skin surface applied to the tracheal defect and the subcutaneous tissue in contact with the esophagus and other mediastinal structures. The graft was then sutured anteriorly with interrupted silk sutures to form a cuff around the tracheal defect, then sutured to the trachea superiorly and inferiorly on the anterior surface. Following this procedure, the lung could be expanded with positive pressure and without evidence of seepage of air or fluid through the defects or around the skin graft. A large catheter was inserted through a stab wound in the ninth interspace. The incision was then closed in layers. Bronchoscopy was performed following the operative procedure. The trachea was patent and dry. The thoracotomy tube was removed on the fourth postoperative day. Closure of the donor area on the anterior abdominal wall was performed on the 26th postoperative day by mobilization of superior and inferior skin flaps. A tracheogram performed on the 28th postoperative day showed an adequate tracheal lumen with a small area of indentation where the skin graft had been applied. The patient is well two months following operation.

Tracheal Resection and Replacement with Prosthesis.—Experiments to determine whether or not it would be possible to make a complete segmental resection of a portion of the trachea and replace this segment with a prosthesis were carried out on dogs. Results showed that the trachea can be resected in the neck or thorax of the animals and that the trachea will regain its continuity over a prosthesis. The prosthetic tube used was constructed of layers of fused polyethylene in which wire was incorporated to prevent cutting through of the sutures with motion. This permitted adequate fixation until continuity was reestablished, and in some instances the anastomosis could be instituted and maintained as an airtight channel. While a segmental tissue defect will regenerate with fibrous tissue, however, this tissue is not capable of supporting itself and stenosis will result when the prosthesis is removed. True tracheal regeneration did not occur. This would indicate that a prosthesis to replace the entire circumference of a resected segment will not be practical to use on human patients. In addition, a prosthesis offers a mechanical barrier to the evacuation of bronchial secretions. Because the prosthesis can be sutured without the sutures cutting out, this type of prosthesis might find other use as replacement for damaged or destroyed blood vessels or possibly resected esophageal segments. In a 63-year-old patient with squamous cell carcinoma of the trachea, the anterior half of the trachea containing the tumor was resected and a polyethylene tube prosthesis was placed to occupy the defect. The incision was closed after fixation of the prosthesis in place with interrupted sutures around the perimeter of the tracheal defect. On the second postoperative day partial atelectasis of the right lung developed that resulted in death the next day. Necropsy revealed an enlarged right heart, mediastinitis, and partial atelectasis of the right lung.

Medical Annals of District of Columbia, Washington

22:169-220 (April) 1953

*Subdural Effusions in Infancy. H. Stevens and J. M. Williams.—p. 169.
Effects of Oral Administration of Pentylenetetrazol and Barbiturate Combinations. T. Koppanyi and J. F. Fazekas.—p. 175.
Hypokaliemia in Porphyria. C. W. Thompson and A. E. Parrish.—p. 177.
Dermatitis from Fabrics. L. Schwartz.—p. 179.
Relationship of Gastric Ulcer to Gastric Cancer. G. T. Pack, A. O. Hampton, F. C. Helwig and others.—p. 185.

Subdural Effusions in Infancy.—Clinicians are now compelled to give their attention to new complications and new sequelae of previously lethal diseases. Subdural effusion in childhood is one of these. This condition usually begins with meningitis in an infant aged 1 year or less. With appropriate antibiotic therapy a "cure" is effected, but the infant remains or becomes listless, pale, anorexic, and irritable. The meningitic process is often blamed, and the conclusion is drawn that irreparable brain damage has resulted from the acute illness and accounts for the whole process. Convulsions, focal paralysis, and stupor may also occur. Stevens and Williams feel that their observations on 30 cases of nontraumatic subdural effusion suggest that this is a common lesion, which can be diagnosed, and that corrective measures may be necessary to prevent neurological complications and to salvage the child's mentality. If the diagnosis is suspected, bilateral subdural taps should be made at the extreme lateral margin of the anterior fontanel or through the coronal suture about midway between the extreme corner of the fontanel and the zygoma. If more than 2 cc. of fluid is found, subdural effusion may be said to be present. The volume obtained with each subdural drainage varies, and in some cases the subdural space eventually "dries up." Whether the subdural effusion can be completely eliminated and all symptoms resolved without sequelae by repeated subdural taps can be determined only by further studies. It is the impression of these authors that, even if the effusion is "dried up" by repeated drainage, a vascularized thickened neomembrane may still remain to encapsulate the brain and strangle its growth. The authors present case histories. These subdural effusions usually occur in infants less than 1½ years old following meningitis, which is usually due to Hemophilus influenzae or Diplococcus pneumoniae. No single diagnostic criterion is reliable, but the history of any meningitis should arouse suspicion, particularly if the child's physical and mental development is not progressing. Subdural taps are essential in such a condition and are considered safe and simple. If subdural fluid persists, it may be inferred that a constricting membrane has formed, necessitating surgical removal in most instances. Morbidity from this membrane may be grave. In addition to meningitis as a cause of subdural effusion, the clinician should be alert to the possibility of such effusion occurring in cachectic children, for example, in children with chronic severe diarrhea. The treatment is the same.

Michigan State Medical Society Journal, Lansing

52:345-464 (April) 1953

Does the Law Seal the Doctor's Mouth? J. J. Herbert.—p. 385.
Opinion Evidence from Medical Experts. B. Doelle.—p. 394.
Malpractice as Seen by a Lawyer. C. C. Purdy.—p. 402.
Psychiatry and the Courts. G. K. Swartz.—p. 406.
Provisions of Michigan Laws Regarding Adoptions. B. Lyons.—p. 410.
Lawyer and Physician Examine the Question of Traumatic Carcinogenesis. J. R. Pedden.—p. 414.
Artificial Insemination and the Law. J. H. Schlemer.—p. 418.
Struggle of Patient Against Doctor. G. Zilboorg.—p. 424.
Psychosurgery Program of Wayne County General Hospital. J. A. Belisle, R. Leiser and H. H. Gass.—p. 429.
Problems in Intestinal Obstruction. P. Thorek.—p. 434.

Minnesota Medicine, St. Paul

36:289-432 (April) 1953

One Hundred Years of Organized Medicine in Minnesota: History of Minnesota State Medical Association, 1853-1953. R. Rosenthal.—p. 323.
Medical Schools and Medical Education Over the Past Century. H. S. Diehl.—p. 332.
Eighty Years of Public Health. N. Wilson and A. J. Chesley.—p. 337.
History of Minnesota State Board of Medical Examiners; 1851-1952. F. H. Magney.—p. 341.
Medical Journalism in Minnesota. C. B. Drake.—p. 344.
A Century of Medicine; 1853-1953. S. M. White.—p. 349.
One Hundred Years of Surgical Progress. D. C. Balfour.—p. 356.
Early Orthopedic Surgery in Minnesota. C. C. Chatterton.—p. 360.
Progress in Pediatrics in Minnesota; 1853-1953. O. W. Rose.—p. 364.
Modern Otolaryngology as a Specialty. L. R. Boies.—p. 368.
Ophthalmology in the Past Century. E. W. Hansen.—p. 371.
Dermatology in the First Century of Medicine in Minnesota. H. E. Michelson and F. W. Lynch.—p. 375.
Hundred Years of Progress in Therapy of Urinary Infection. W. F. Braasch.—p. 378.
Minnesota Obstetrics; 1853-1953. W. P. Sadler.—p. 381.
Neurologic and Psychiatric Trends in Minnesota. A. B. Baker, B. C. Schiele, D. W. Hastings and R. A. Jensen.—p. 384.
Rapid Frozen Sections—Their Value in Diagnosis. M. B. Dockerty.—p. 387.

Neurology, Minneapolis

3:77-162 (Feb.) 1953

Occlusion of Superior Cerebellar Artery. J. A. Luhan and S. L. Pollack. —p. 77.
Studies on Cervical Spinal Cord of Man: Sensory Pattern After Interruption of Posterior Columns. B. Boshes and F. Padberg.—p. 90.
Background Illumination and Visual Threshold in Hemianopic Areas. M. B. Bender and H. P. Krieger.—p. 102.
*Bodily State in Injuries of Spinal Cord. H. Chor, I. Finkelman and H. Blustein.—p. 111.
Disorders of Electrolyte Metabolism in Diseases of Central Nervous System. I. S. Cooper.—p. 119.
Neurologic Complications of Hemorrhagic Diseases. W. S. Chalgren. —p. 126.
Spinal Fluid Findings Following Cerebral Angiography. J. M. Stein and M. Fink.—p. 137.

Bodily State in Injuries of Spinal Cord.—The nervous regulation of various bodily functions requires that the influences from centers in the cerebral cortex, diencephalon, and brain stem be transmitted through the autonomic nervous system. Many of these influences reach the viscera or tissues to be regulated through the spinal cord. In injuries of the spinal cord, most attention has been given to the disturbances in motion, sensation, reflexes, bowel and bladder function and the nutritional state, particularly bed sores. Alterations in other bodily functions, such as cardiovascular regulation, glucose metabolism, water metabolism, temperature regulation, and gastrointestinal activity, have been given little attention. Chor and his associates found the basal blood pressure to be low in cervical cord lesions. Orthostatic hypotension occurred oftenest in cervical cord lesions, and momentary loss of consciousness often resulted when the erect position was attempted. A reverse reflex hypertension, with headache and other unpleasant sensations, occurred during the administration of enemas. Glucose tolerance curves were abnormal, although there was no evidence of disease of the liver, pancreas, adrenal glands, and thyroid. There was a defect in concentration of the urine as well as in the day-night ratio, in the absence of signs of kidney disease. There was stasis in the colon as determined by charcoal excretion tests. Gallbladder evacuation and concentration were normal. Diarrhea was observed occasionally. A constant finding in cord injuries was a great loss of weight, which usually was not regained. Hunger and thirst were experienced as well as a sensation of fullness after eating. Nausea was produced by various stimuli as well as by retained feces and calculi. Hiccoughs were due to the usual causes. The water intake was greatly increased, particularly in cervical cord lesions. Death in patients with spinal cord lesions has usually been attributed to infection, especially of the urinary tract and terminally of the lungs. In analyzing the clinical histories of those who died the authors found that in most cases genitourinary infections were not the only cause. Many of them had had recurrent attacks of sepsis. Most of them had had several surgical procedures performed. Severe decubitus, osteomyelitis, heart lesions, pulmonary disease, gastrointestinal complications, and general nutritional disturbances were encountered. Even when the terminal picture was that of uremia due to kidney failure, other factors contributed to the fatal outcome in many cases.

New England Journal of Medicine, Boston

248:621-664 (April 9) 1953

*Betaine and Glycocyamine in Treatment of Poliomyelitis. A. L. Watkins. —p. 621.
Interpretation of One-Stage Method for Determining Prothrombin Time. A. J. Quick and C. V. Hussey.—p. 624.
Renal Thrombosis Complicating Epidemic Diarrhea of Newborn: Nephrectomy with Recovery. H. W. Clatworthy Jr., D. R. Dickens and C. R. McClave.—p. 628.
*Plantar Warts: Cure by Injection. E. C. Branson and R. L. Rhea Jr. —p. 631.
Pharmacologic Aspects of Adrenocortical Steroids and ACTH in Man (Concluded). G. W. Thorn, D. Jenkins, J. C. Laidlaw and others. —p. 632.

Betaine and Guanidineacetic Acid in Treatment of Poliomyelitis.—The purported value of betaine and guanidineacetic acid (glycocyamine) was investigated in nine patients who had residual muscle weakness following an attack of poliomyelitis one or more years previously. All of them were cooperative adults who had reached a stage at which increases in muscle function were absent or minimal. A 10th patient was studied who had had infectious polyneuritis several years previously, with residual paralysis of the muscles of both legs. To make the evaluation as objective as possible, the strength of the muscles studied was measured by means of a special instrument known as a Myodynemeter, utilizing a strain gage with a calibrated recording device and standardized test positions. A total of 76 muscle actions were recorded, since 2 to 13 different muscles were tested in each of the 10 patients. Tests of the following muscle actions were included: wrist flexion and extension; elbow flexion and extension; shoulder internal rotation, vertical and horizontal abduction, and extension and flexion; foot dorsiflexion, eversion, inversion and combined dorsiflexion and inversion, and knee extension and flexion; and hip flexion, extension, adduction, abduction, internal rotation, and external rotation. The patients were given guanidineacetic acid in daily doses of from 3 to 5.5 gm. and betaine in doses of 20 or 25 gm. daily. The patients were told that this was an experimental study to determine the benefits of new drugs. Efforts were made not to show any enthusiasm for the drugs. Only 26% of the muscles tested showed as much as a 20% increase in strength, which did not appear significant subjectively or functionally. When increases in strength occurred, they appeared in muscles that had not received intensive exercise to increase power. Under the conditions of this study, betaine and guanidineacetic acid were not considered to have significant value in the treatment of muscle weakness resulting from poliomyelitis.

Plantar Warts: Cure by Injection.—The simple treatment here described was accidentally discovered by a surgical technician, who, having been approached by a soldier with a plantar wart and a desire to march in a special parade, injected the wart with procaine (Novocain) as a temporary expedient. The soldier marched in the parade, and in a few days the plantar wart disappeared. After this the method was successfully applied in 48 patients. It has been possible to follow 30 of these for six months and 22 of them were cured. In seven cases a plantar wart was still present but was asymptomatic. Only one patient showed no improvement after three injections. Three patients in the series had extensive plantar warts of the mosaic type and were cured. One of these had approximately 30 warts involving the entire plantar surface of the left foot, and treatment by any of the currently accepted methods would have been extremely difficult. The treatment consists of the injection of 2 or 3 cc. of 1% procaine under pressure into the base of the wart in the stratum germinativum layer of the epidermis. Best results are obtained with the use of a 26-gage needle and a Luer-Lok dental syringe. The needle should penetrate to the stratum germinativum through normal skin at the side of the wart; and only one needle puncture should be made, because the injected fluid escapes through multiple holes and sufficient pressure cannot be obtained. If the needle is properly placed, there is considerable resistance to injection, and the desired marked blanching of the skin and elevation of the wart will result. Patients usually become symptom-free within 24 hours. In five to seven days the wart becomes soft and darkened. Usually, it can be lifted out with a thumb forceps after a week.

248:665-708 (April 16) 1953

Whipple's Disease: Report of Case with Special Reference to Histochemical Studies of Biopsy Material and Therapeutic Results of Corticosteroid Therapy. C. M. Jones, J. A. Benson Jr. and A. L. Roque. —p. 665.
*Pseudoprecocious Puberty in Girls as Result of Estrogen Ingestion. C. D. Cook, J. W. McArthur and W. Berenberg.—p. 671.
*Problems and Practices in Community Hospital: II. Postoperative Stricture of Biliary Tract. F. R. Pierce and J. P. Marnane.—p. 674.
Role of Cortisone in Treatment of Severe Bronchial Asthma. W. S. Burrage and J. W. Irwin.—p. 679.
Urology. F. H. Colby.—p. 682.
*Vitamin A Intoxication: Report of Case in an Adult. E. Bifulco. —p. 690.
Practical Use of Cooling Device to Inhibit Cutaneous Pain of Hypodermic Injections. H. L. Mueller.—p. 692.

Pseudoprecocious Puberty as Result of Estrogen Ingestion.—The first of the two patients with pseudoprecocious puberty who are described here was a girl, 4 years and 3 months old. She was referred to the hospital because of tenderness and enlargement of both breasts, with dark pigmentation of the areolae, of three weeks' duration. Two days before admission scanty vaginal bleeding had occurred. A preoperative diagnosis of a solid tumor of the left ovary (with a question of granulosa cell tumor) was made, and an exploratory laparotomy performed. The uterus and fallopian tubes proved to be enlarged and hyperemic, but no abnormal masses were found. Histological studies of biopsy material showed normal preadolescent ovarian tissue, with no evidence of follicular activity. After the laparotomy further questioning revealed that diethylstilbestrol had been in the house and easily available to the child, the mother having taken the drug until four months before the appearance of the child's precocious breast development. Follow-up examination one month postoperatively showed complete regression of the breast enlargement and a considerable decrease in the pigmentation. No further vaginal bleeding had occurred. The second case occurred in a 7-year-old girl, who was referred to a Children's Medical Center because of bilateral breast enlargement of four weeks' duration and vaginal bleeding that had begun three days before admission. Further investigation revealed that the child, who attended a boarding school, was taking four pills three times a day that supposedly were vitamin preparations. Bioassay of the suspicious tablets in female rats revealed the presence of estrogenic activity. Further inquiry established the fact that the patient's father had mistakenly given her diethylstilbestrol instead of ascorbic acid tablets. Examination two months later showed that the signs of precocious puberty had disappeared. The authors suggest that areolar pigmentation in young girls might suggest the possibility of diethylstilbestrol ingestion. They advocate postponing laparotomy for two to four weeks when the pelvic findings are negative or equivocal.

Postoperative Stricture of Biliary Tract.—Pierce and Marnane describe four cases of loss of continuity of the common bile duct after cholecystectomy, at least three of which are attributable to surgical bile duct injury. In the fourth case an inflammatory process seemed largely responsible. A surgeon's prompt realization in one of the cases of the probable cause of the difficulty, which developed a few days after a presumably uncomplicated operation, and his immediate referral of the case to a surgeon with greater experience in the treatment of such injuries proved to be very important. It is now six years since the last common duct injury occurred in the hospital with which the authors are connected. At that time the surgical staff discussed gallbladder disease and stressed that even in the "easy" cases caution is required. There is a high incidence of congenital anomalies of the biliary system. The surgeon should familiarize himself early in the operation with the exact location of the structures of the gastrohepatic ligament, so that bleeding from the cystic artery may be controlled by pressure of the hepatic artery between the thumb and forefinger, obviating the hasty, blind application of clamps. The angle between the cystic duct and the common duct should be well exposed. The cystic artery should be exposed to its entrance to the gallbladder and tied close to this point. It is safer to tie the cystic duct before clamping, and the clamp should be distal to the well-visualized tie. One should beware of applying ties or clamps while traction is applied to the gallbladder. The duct system with lax peritoneal investments is easily knuckled. In acute cases, if the landmarks are obliterated by edema, a cholecystostomy may be the operation of choice. Secondary removal of the gallbladder is a far less formidable procedure than repair of the injured ductal system. At the end of a cholecystectomy, the bile ducts should be carefully inspected; if the surgeon finds that injury has occurred, he should repair it immediately. Any surgeon who undertakes a gallbladder operation should be ready to carry out this procedure. If it becomes apparent early in the postoperative period that injury has occurred, a surgeon experienced in plastic repair on the biliary tract should be consulted at once, so that repair will not be further complicated by increased scar tissue of unsuccessful secondary operations.

Vitamin A Intoxication in an Adult.—A 52-year-old woman was seen in consultation by the author because her physician wanted to ascertain the cause of spontaneous bleeding from the mucous membranes. She had had generalized flaking of the skin since childhood, and about 4½ years previously cracking and oozing about the skin of the legs had developed. When various treatments did not give relief, her physician started vitamin A therapy. In the early part of 1948 she received 150,000 I. U. of vitamin A and 100 mg. of an antihistamine daily for the first week and 100,000 units of vitamin A daily thereafter. The latter dose of vitamin A was taken from the early part of 1948 until Feb. 29, 1952. Insomnia and listlessness began in the early part of 1949. Another year elapsed before she began to note loss of scalp hair. Extraction of the upper teeth exemplified the danger of hemorrhage from the gums and mucous membranes and its correction by administration of vitamin K. The relation of pulsating exophthalmos to vitamin A intoxication, if any, is unknown. The patient never complained of a pulsating headache until a month before vitamin A therapy was stopped; the headaches still persist. The fact that she was completely relieved of her joint pains and aching bones, with regrowth of lost hair within six months of discontinuation of ingestion of vitamin A, is interpreted as evidence of toxicity to vitamin A ingested in large doses over a prolonged period. This case proves that vitamin A intoxication is not limited to infants and children. Sulzberger and Lazar recently described this syndrome in an adult who was inspired to self medication with large doses of vitamin A by a radio "nutrition commentator." In its major clinical manifestations the syndrome appears to be the same whether it occurs in children or adults. This case again emphasizes and confirms the opinion of previous authors that "physicians administering large doses of vitamin A must be on the lookout for signs and symptoms of toxicity."

New York State Journal of Medicine

53:593-720 (March 15) 1953

Carcinoma of the Lung. H. C. Maier.—p. 650.
Clinical Effect of ACTH on Acute Rheumatic Fever. J. T. Aquilina and C. E. Bathrick.—p. 655.
Female Senility: Report of Series of 217 Cases Using Glutest, New Fortified Androgen. W. L. Gould and I. Strosberg.—p. 661.
The Haematype System: Method for Recording Blood Grouping and Rh_0 Determination Permanently, Accurately, and Rapidly: Preliminary Report on Evaluation Study. M. Schlachman and A. Saccone.—p. 667.
Admission to Hospital: Stumbling Block in Impending Delirium. M. Levin. —p. 669.
*Evaluation of Pancreatic Function Tests. D. A. Dreiling Sr.—p. 671.
Clinical Evaluation of Phenylbutazone (Butazolidin), New Antiarthritic Agent. C. S. Byron and H. B. Orenstein.—p. 676.
Electrocardiographic "Abnormalities" in Noncardiac Patients: Clinical Studies of Effect of Some Dihydrogenated Ergot Alkaloids on Certain Electrocardiographic Abnormalities. M. I. Salomon.—p. 681.
Treatment of Headaches. M. M. Braaf and S. Rosner.—p. 687.
Removable Foam Rubber Forceps Mittens. E. M. Greenberg.—p. 694.

Pancreatic Function Tests.—In reviewing the more important laboratory method of studying external pancreatic function Dreiling considered (1) the examination of blood enzymes, (2) examination of feces, and (3) examination of duodenal drainage. The results of studies on patients with normal and abnormal pancreatic function are presented in tables, and the author arrives at the following conclusions: 1. Blood amylase elevations, when present, are of diagnostic significance, but no correlations can be made on a quantitative basis. The results of the various so-called provocative blood enzyme tests are indeterminate. 2. Chemical analysis of the stool furnishes information as to the completeness of digestion and absorption but cannot be used as a reliable quantitative index of pancreatic function. The secretin test yields quantitative data concerning the external pancreatic secretion. Its value in the diagnosis of acute pancreatitis is limited by the rapidity with which the external secretion returns to normal ranges. Pancreatic cancers and chronic pancreatitis can be diagnosed by the characteristic alterations produced in the secretin test responses. In the advanced stages of both diseases, the secretin responses are no longer diagnostically distinct. To overcome this drawback, some investigators combined the secretin stimulus with insulin, methacholine (Mecholyl), or bethanechol (Urecholine). These agents, although potent enzyme stimuli, have the disadvantage of producing not only cardiovascular side-reactions and disturbing changes in gastrointestinal motility but also of stimulating the production of large amounts of gastric acid. The author feels that a standardized preparation of a pancreatic enzyme is needed to complete the secretin test.

North Carolina Medical Journal, Winston-Salem

14:137-176 (April) 1953

Drug Therapy in Tuberculosis. J. S. Hiatt Jr.—p. 137.
Pharmacologic Approach to Obstetric Anesthesia and Analgesia. C. E. Flowers Jr.—p. 140.
Pyogenic Abscess of Liver. E. R. Raylor and H. M. Schiebel.—p. 144.
Massive Tumor of Parotid Gland; with Report of Case. J. F. Patterson Jr.—p. 150.
Abnormal Conditions Resulting from Uncontrolled Emotions. O. R. Yost. —p. 156.
Retrolental Fibroplasia in Piedmont North Carolina. T. D. Ghent and R. W. Roberts.—p. 159.

Northwest Medicine, Seattle

52:267-346 (April) 1953

Selective Radicalism in Treatment of Carcinoma of Stomach. R. S. Smith.—p. 286.
Surital Sodium for Complementation of Spinal Anesthesia. A. C. Kirchhof and D. F. Newcomb.—p. 289.
Vitamin B_{12} in Massive Dosages for Herpetic Lesions: Preliminary Report. G. B. Leitch.—p. 291.
*Toxaphene Poisoning—Report of Fatal Case. R. W. Pollock.—p. 293.
Changing Panorama of Medical Care and Some of Its Implications in Medical Education. E. L. Turner.—p. 295.

Fatal Case of Toxaphene Poisoning.—Toxaphene is widely used as a pesticide against agricultural insects. It is used as a dust, emulsion, spray, wettable powder, and bait. When ingested, toxaphene acts on the central nervous system and causes generalized convulsions of a tetanoid or clonic nature. The selective activity of toxaphene on the central nervous system is best explained by its high lipoidal solubility. All species of animals used in testing this pesticide manifested generalized convulsions. Sublethal doses caused shorter and fewer convulsions. If the dose was lethal, death was due to respiratory failure after a series of convulsions of increasing severity. Warning symptoms such as nausea, abdominal cramps, and vomiting are absent in toxaphene poisoning. Convulsion with loss of consciousness is the cardinal symptom. In the treatment gastric lavage with strong saline solution is used to clean the stomach and saline cathartics to clean the intestines. Dogs survive ingestion of large doses of toxaphene when it is administered in an indigestible oil. Mineral oil, when given early, is effective in decreasing absorption and therefore should be given by prompt gavage or by mouth. The drugs of choice in combating the convulsions in experimental animals are the barbiturates. The authors report a fatal case in a girl, aged 16 months, who was found playing in the yard with a thick, molasses-like substance on her face and hands, the source being a discarded gallon can. After reading the directions on the label, the mother washed the child's face and hands and gave one-third of a glass of salty water. Fifteen minutes later the child was forced to drink one-half of a glass of salty water. The child did not vomit. One-half hour later the mother noticed that the child was limp and turning blue. The child was at once driven to the hospital, but convulsions started en route and never ceased until 10 minutes before death, three and one-half hours later.

Obstetrical & Gynecological Survey, Baltimore

8:155-310 (April) 1953. **Partial Index**

*Spontaneous Rupture of Apparently Normal Uterus During Pregnancy: Review. L. B. Felmus, P. Pedowitz and S. Nassberg.—p. 155.
Possible Role of Smegma in Etiology of Squamous Cell Carcinoma of Cervix Uteri (With Short Review of Literature). R. Fischer.—p. 232.

Spontaneous Rupture of Uterus During Pregnancy.—This review is concerned only with spontaneous rupture of the uterus during pregnancy without apparent cause. In addition to 116 cases found in a thorough search of the literature, 5 new cases are described, 3 observed by the authors of this paper and 2 from other hospitals. Although there may be no apparent cause for rupture of the gravid uterus, careful analysis of the patient's history may reveal a predisposing factor. Except for previous cesarean section and myomectomy, the most common predisposing factors for rupture of the uterus before the onset of labor are previous intra-uterine manipulation (such as curettage and manual removal of the placenta) and postabortive or postpartum sepsis. Intra-uterine infection during pregnancy also may be a cause of rupture. Thrombosis of a uterine blood vessel with infarction of the myometrium is reported for the first time as a cause for rupture before labor. Among the less common causes are adenomyosis uteri with excessive trophoblastic penetration of the myometrium, the thinned uterine wall of the multipara, congenital abnormalities of the uterus, and cornual or angular pregnancies. Spontaneous rupture of the uterus during pregnancy is most frequent during the last trimester but may occur as early as the fourth month. Rupture before the sixth month of gestation occurred in 35 cases and after the sixth month in 71 cases. The time of rupture in the remaining 15 cases was not recorded. In contrast to the characteristically lower uterine segment rupture during labor, the laceration during pregnancy is almost always in the corpus of the uterus. Rupture, however, may occur in the lower segment when infarction involves that area. The symptoms and signs of spontaneous rupture of a gravid uterus may vary from vague, mild abdominal pain to those of an acute abdominal catastrophe with general collapse. When the rupture is complete, fetal parts may be palpated directly beneath the abdominal wall. The accompanying abdominal distention, nausea and vomiting, and evidences of peritoneal irritation indicate the presence of an acute surgical emergency. In most cases, however, the fetus is not extruded into the abdominal cavity. Abdominal palpation usually reveals only a tender uterus, similar to moderate premature separation of the placenta. A deceptively slow decline in the level of hemoglobin confuses the diagnosis, so that laparotomy is often deferred, a delay that may prove fatal. When there is doubt, exploratory laparotomy should be done. The maternal death rate increases in direct relationship to the time elapsed between rupture of the uterus and laparotomy for the arrest of hemorrhage. Shock is not a contraindication to surgical treatment in these patients. Adequate blood replacement may mean the difference between life and death, and intra-arterial transfusion may be necessary.

Ohio State Medical Journal, Columbus

49:281-376 (April) 1953

Indications for and the Results of Surgery in Congenital Cardiovascular Diseases. S. Kaplan and J. A. Helmsworth.—p. 297.
Case of Homologous Serum Jaundice After Transfusion of Stored Whole Blood. L. B. Mehl.—p. 301.
Lesions Producing Bursitis-Like Symptoms: Importance of Radiographic Study Before Treatment of Bursitis. J. D. Osmond Jr. —p. 302.
*Anaphylactic Shock Following Administration of Penicillin. I. F. Nikishin.—p. 305.
Intramuscular Pentobarbital Sodium for Premedication to Children. J. R. Jarvis.—p. 308.
Emergency Room Treatment of Comatose Patient: Review of 100 Cases. L. V. Phillips and H. E. May.—p. 310.
Special Study of Endemic Goiter in Mexico and Central and Latin American Countries. O. P. Kimball.—p. 313.

Anaphylactic Shock Following Administration of Penicillin.—Untoward effects of penicillin are not the result of direct toxicity but of hypersensitivity. They mainly consist of urticaria, contact dermatitis, gastrointestinal reactions, arthralgia, and drug fever. Because of the antigen-antibody mechanism of penicillin reaction, as has been experimentally demonstrated, one has to be aware of a more serious reaction based on the same mechanism and known as anaphylactic shock. Nikishin found only five instances of true anaphylactic reactions to penicillin in the available literature. In reviewing the characteristics of these patients, the author says that all but one had received penicillin several weeks prior to the injection that was followed by shock, but none manifested signs of sensitivity during previous administrations. The patients received the "exciting doses" intramuscularly; intravenous injection could be proved in none of the patients. The reaction began almost immediately. It was manifested by flushing of the face, choking, wheezing, dyspnea, and a subjective feeling of tightness in the chest and throat, followed by extreme circulatory depression with a rapid, weak, almost imperceptible pulse, low or unobtainable blood pressure, profuse perspiration, and collapse. Antiallergic treatment was successful when it was employed. The author also reviews two previously reported fatal cases of anaphylactic shock following injection of penicillin and then describes a case of his own observation, in which recovery followed various treatments. The use of drugs with antihistaminic effects proved effective in this as well as in other cases. Avoiding the allergen prevents anaphylactic shock, but an occasional inadvertent intravenous injection is apparently unavoidable. The mishap will be less frequent if the use of small caliber needles for intramuscular injections is discontinued. It seems impracticable to test the sensitivity of every patient in need of penicillin, but the author pleads for discrimination in the use of penicillin as well as other antibiotics. The duration of drug allergy is unpredictable, but may last many years and may become evident in a fatal anaphylactic shock. The number of penicillin sensitive persons is probably increasing with widening use of this powerful drug.

Pediatrics, Springfield, Ill.

11:309-424 (April) 1953

Rickets, Deficiency of "Alkaline" Phosphatase Activity and Premature Loss of Teeth in Childhood. E. H. Sobel, L. C. Clark Jr., R. P. Fox and M. Robinow.—p. 309.
Comparison of Therapeutic Efficacy of Four Agents in Pertussis. R. G. Ames, S. M. Cohen, A. E. Fischer and others.—p. 323.
Acute Nicotine Poisoning: Case Report. B. B. Oberst and R. A. McIntyre.—p. 338.
*Significance of Febrile Convulsions. W. G. Lennox.—p. 341.
Eosinophilia-Hepatomegaly Syndrome of Infants and Young Children: Report of Case Due to Invasion of Liver by Nematode Larvae. C. L. Milburn Jr. and K. F. Ernst.—p. 358.
Treatment of Meningitis with Chloromycetin Palmitate®: Results of Therapy in Twenty-Three Cases. G. E. Deane, J. E. Furman, A. R. Bentz and T. E. Woodward.—p. 368.
Pleuropneumonia Organism Meningitis Complicating Ruptured Meningocele: Report of Case with Recovery. J. H. Davis and L. H. Arnstein.—p. 381.
Staphylococcal Pneumonia and Empyema. A. Kanof, B. Epstein, B. Kramer and I. Mauss.—p. 385.

Febrile Convulsions.—Convulsive seizures that attend a febrile illness are significant because of the number of children involved. Figures from various reports and a gross estimate suggest that about 2% of all children have one or more febrile seizures in the first five years of life. Although many pediatricians believe that a fever seizure is an innocent symptom, the counterpart of a chill in an adult, Lennox feels that a febrile seizure cannot be easily dismissed. He suggests that a convulsive seizure in association with fever may mean one of six things: 1. The fever may be a consequence of a spontaneous seizure, the result of an excess of muscular energy and heat. 2. The seizure may be the result of excess hydration or of antibiotics given to combat an infection. 3. The fever may be a seizure phenomenon, the result of a paroxysmal seizure discharge in the region of the hypothalamus. 4. The seizure may be due not to the fever but to bacterial toxins. 5. It may be the secondary result of an invasion of the brain by the infectious organisms. 6. The seizure may be due to none of these, but may be the response to high fever in association with some infection. In addition, the seizure may not be the consequence of fever, but both fever and seizure may be a consequence of toxic action on brain cells. The following features have not yet been satisfactorily explained: 1. Fever-induced seizures occur mostly in the very young. 2. Almost invariably the febrile seizure is the child's initial seizure. 3. Response to fever is almost invariably a convulsion rather than some other manifestation of epilepsy. In a study of persons whose first convulsive seizure occurred during the first decade of life it was found that extreme youth and absence of pathologic changes were oftenest associated with febrile seizures. Among a total of 407 epileptics who suffered fever convulsions as the first manifestation, 76.9% subsequently experienced nonfebrile seizures. In 22% an interval of five years or longer separated the last febrile seizure from the first nonfebrile one. The fact that subsequent seizures were mostly psychomotor seizures suggests that febrile seizures may sometimes be accompanied by temporal lobe lesions. Febrile seizures are usually innocuous, but if prolonged, focal, or attended by much cyanosis or protracted coma, they may cause brain damage. Of 392 patients who sustained brain injury in the first 10 years of life, febrile seizures were blamed for the injury and the continuing epilepsy in 5.4%. The genetic influence in children having fever-induced seizures is very strong. In the author's group, this influence, as measured by the incidence of epilepsy among near relatives, is approximately double the genetic influence in young children having only nonfebrile seizures. If evidence of hereditary transmission is accepted as indicative of essential epilepsy, then a febrile seizure is epilepsy. Fever-activated epilepsy is short lived, however; the majority of children with this form had only one or two seizures.

Surgical Clinics of North America, Philadelphia

33:311-618 (April) 1953. Partial Index

SYMPOSIUM ON SURGERY OF CANCER

Cancer of Breast. F. E. Adair.—p. 313.
Radical Surgery in Cancer of Head and Neck: Changing Trends in Treatment. H. Martin.—p. 329.
Surgical Treatment of Carcinoma of Thyroid Gland: With Special Reference to Metastasis. W. F. MacFee.—p. 361.
*Carcinoma Involving Esophagus. G. H. Humphreys, II. and R. L. Moore.—p. 389.
Radical Surgery for Lung Cancer. W. L. Watson.—p. 401.
Diagnosis and Treatment of Mediastinal Tumors. H. C. Maier.—p. 415.
Benign Tumors of Stomach. R. Colp and V. A. Weinstein.—p. 433.
One-Stage Segmental Resection with End-To-End Anastomosis for Rectosigmoidal Cancer. G. E. Binkley.—p. 453.
Diagnosis of Biliary-Pancreatic Cancer. H. Doubilet, H. H. Sage and J. H. Mulholland.—p. 461.
Malignant Neoplasms of Spleen: Primary and Secondary. L. M. Rousselot and C. Stein.—p. 493.
Carcinoma of Bladder. W. F. Whitmore Jr. and V. F. Marshall.—p. 501.
Treatment of Malignant Melanoma of Skin. G. T. Pack, I. M. Scharnagel and D. M. Gerber.—p. 517.
Value of an Intensive Pelvic Cancer Detection Program: With Special Reference to Intraepithelial Carcinoma. M. R. Marsh and L. M. Hellman.—p. 525.
Serous Cystadenocarcinoma of Ovary: Review of 127 Cases. C. T. Javert and R. R. Rascoe.—p. 557.

Carcinoma Involving the Esophagus.—Although surgical procedures for removal of segments of the esophagus have been carried out in an increasing number of centers, with decreasing immediate mortality, few objective reports of over-all and end results are available. At the Presbyterian Hospital in New York City 228 patients with carcinoma involving the esophagus were treated in the 10 year period from 1941 through 1950. Of these, 162 had primary carcinomas of the esophagus; 47 had carcinomas of the stomach with extension to the lower esophagus; and 19 had carcinoma involving the esophagus but originating in some other structure. Most of the patients were in the sixth and seventh decades of life, and the ratio of men to women was approximately 4:1. One patient is living and apparently free of disease seven years after resection of an adenocarcinoma of the cardia involving the esophagus. No patient has survived five years after resection of a primary carcinoma of the esophagus. No patient lived more than one year after involvement of the esophagus in carcinoma originating in another structure other than the stomach. Improvements in operative techniques have resulted in substantial decrease in operative mortality during the second half of the period studied and may result in a higher proportion of long-term survivors, especially if greater selectivity is exercised in resorting to resection. Whether resection for palliation in cases with demonstrable irremovable metastases is justifiable as compared to results of radiotherapy remains in doubt. The authors feel that in order to achieve reliable evaluation of the therapeutic methods of this highly fatal disease, the results in unselected series rather than in series selected for operability should be reported.

Tennessee State Medical Assn. Journal, Nashville

46:77-120 (March) 1953

Poliomyelitis: Value of Early Diagnosis in Prevention of Paralysis. E. R. Atkinson.—p. 77.
Partial Cholecystectomy in Acute Cholecystitis. A. H. Meyer Jr.—p. 80.
Analgesia and Anesthesia with Trilene. J. R. Smith.—p. 87.

FOREIGN

Acta Allergologica, Copenhagen

6:89-160 (No. 2) 1953. Partial Index

Histamine Liberators and Intracutaneous Reaction to Tuberculin in Man. J. Lecomte and C. Borensztajn.—p. 89.
Serological Studies on Pollen Extracts: II. Demonstration by Serological Method of Specificity of Antigen-Mosaic of Extracts of Six Grass Pollens. M. L. Gosselin, L. S. Mynors, R. R. A. Coombs and F. H. Milner.—p. 96.
*Circulating Eosinophil Cells in Hay-Fever Patients in Relation to Specific Desensitization. P. J. Dragsted.—p. 103.
Adrenal Cortical Function in Bronchial Asthma and Its Diagnostic Value. E. Andersson.—p. 107.

Circulating Eosinophil Cells and Specific Desensitization in Hay Fever Patients.—Eosinophil counts just before and one hour after exposure to Timothy pollen demonstrated varying reactions in hay fever patients, depending on whether or not the patients had previously received specific treatment. Eleven patients who had not previously been treated and two persons allergic to fungi reacted to exposure to the specific antigen by an average increase of 46% in the eosinophil count, while 13 previously treated hay fever patients had an average decrease of 51% in the number of eosinophils. These results show that untreated and treated hay fever patients have distinctly different reactions to specific antigens in which the adrenals seem to play an important part. For the present no conclusions may be drawn as to the way in which the organism is affected by specific desensitization.

Acta Haematologica, Basel

9:201-272 (No. 4) 1953. Partial Index

Encephalographic and Psychologic Changes in Pernicious Anemia. W. C. L. Diefenbach, M. R. Beyers and L. M. Meyer.—p. 201.
Therapy of Symptomatic Hemolytic Anemias. K. Sievers and H.-G. Harwerth.—p. 208.
Experimental and Cytochemical Investigations on the Relations of Hemoglobin Production to Synthesis of Proteins in Erythroblastosis. S. de Carvalho.—p. 220.
*Further Studies on Blood and Bone Marrow After Administration of ACTH and Cortisone. N. G. Hävermark and N. G. Nordenson.—p. 226.
Infectious Mononucleosis with Thrombopenic Hemorrhagic Diathesis: Report of Case. J. S. Jørgensen.—p. 253.

Effect on Blood and Bone Marrow of Corticotropin and Cortisone.—Studies were made on the blood and bone marrow of three patients with arthritis who had been treated with corticotropin and cortisone. There was evidence of stimulation of the erythropoiesis and myelopoiesis, with transient reticulocytosis and an increase of the mature segmented cells. The previously inhibited maturation of the bone marrow tended to become more normal. The lymphocytes were not noticeably influenced. Continued administration of corticotropin elicited normal stimulation of the adrenal cortex, as reflected in marked eosinopenia; a slight decrease in eosinopenia was noted after treatment with cortisone. The serum iron level temporarily increased in some patients. The hyperplasia of the reticular cells of the bone marrow seemed to decrease simultaneously with a change in the phagocytosis. The lack of uniformity in the changes observed may be due to the varying dosage. The changes were less marked with cortisone, probably because cortisone affects the metabolism less than corticotropin does.

Acta Medica Orientalia, Jerusalem

12:63-94 (March) 1953

Chronic Pancreatitis: Revision of Diagnostic Criteria and Therapy. E. Lyon.—p. 63.
Urea Clearance Determination by Means of Nonprotein Nitrogen Estimation. F. Rappaport, F. Eichhorn and S. Goldberg.—p. 75.
Sarcoid of Bone Resembling Rheumatoid Arthritis: Report of Case. M. Buchmann, S. Joles and L. Nelken.—p. 80.
*ACTH Treatment in Case of Cyanide Poisoning. I. Lurie.—p. 87.

Corticotropin in Cyanide Poisoning.—The occurrence of cyanide poisoning is reported in a healthy 47-year-old man who entered by mistake a room that had not been ventilated after fumigation with hydrocyanic acid gas. The patient was given methylene blue, nitrites, and calcium thiosulfate, but did not respond. He lost consciousness and sank into deep coma. His condition improved rapidly after intravenous infusion of 25 mg. of corticotropin (ACTH). The dose was repeated after 3 hours and the patient regained consciousness after 12 hours. No explanation can be offered for the role played by corticotropin in cases of poisoning. The author believes that in the case reported the addition of corticotropin to the usual therapy played a decisive part; the prompt improvement in the patient's condition immediately after the administration of corticotropin was very impressive. There should be no hesitation in giving corticotropin a therapeutic trial in cases of severe cyanide poisoning.

Acta Neurologica et Psychiatrica Belgica, Brussels

53:247-308 (April) 1953

Functional Syndromes of the Cortex in the Region of the Middle Cerebral Artery. J. J. Lopez-Ibor and J. C. Ortiz de Zarate.—p. 247.
Symptomatology of Myoclonias. E. Krebs.—p. 268.
*Diffuse and Multiple Sclerosis. G. de Morsier and H. Feldman.—p. 279.

Diffuse and Multiple Sclerosis.—Diffuse sclerosis cannot be distinguished from the classic form of multiple sclerosis by any exact criteria, and differential diagnosis is complicated by the frequent occurrence of transitional forms. The terms diffuse sclerosis and Schilder-Foix disease are generally applied to a progressive condition found chiefly in children and young adults that is characterized by varied neurological manifestations, principally psychic disturbances, ocular signs, and those of pyramidal origin. The most striking characteristic is a primary, progressive, sclerosing process affecting the two hemispheres, either unequally or symmetrically, sparing the cortex and to a variable extent the subcortical arcuate fibers (Meynert's U-shaped fibers). The only constant abnormality in all the diseases in this group is diffuse bilateral demyelination of the oval center. Diffuse sclerosis usually progresses rapidly and remissions are rare. An unusually prolonged case of 29 years' duration was presented by a woman who was treated for pulmonary tuberculosis between the ages of 12 and 20. Lesions of the apex of the left lung necessitated a pneumothorax, after which her pulmonary condition was satisfactory. Mental disturbances, irregularities of behavior, and manual awkwardness appeared at 20; at 30, there was decided muscular weakness in the left forearm and hand, and the shock of a broken engagement to be married intensified her complaints. Her walk became ataxospasmodic about 10 years later and her mental condition deteriorated still further; at the age of 50, she entered the hospital, scarcely able to walk. Her course was steadily downward and five months later she died. Autopsy showed foci of demyelination of the multiple sclerosis type. Other foci, however, resembled those found in diffuse sclerosis; demyelination was irregular and predominantly hemispheric, cells containing granulolipid bodies were present, and there was marked perivascular lymphocytic infiltration.

Acta Tuberculosea Scandinavica, Copenhagen

28:1-154 (No. 1-2) 1953. Partial Index

*Tuberculosis in Bornholm After B.C.G. Vaccination. H. C. Olsen.—p. 1.
Rehabilitation. F. Heaf.—p. 31.
Extraperiosteal Plombage with Polystan Sponge: Collapse Therapy in Severe Pulmonary Tuberculosis. H. Engberg and J. L. Hansen.—p. 45.
Roentgenological Course of Cavity Healing. H. H. Amstein-Langaas.—p. 62.
Problems Concerning Demonstration of Tubercle Bacilli in Gastric Lavage. I. H. C. Engbaek.—p. 74.
Position of Lymphoglandular Bronchial Tuberculosis in Tuberculosis Infection. R. H. Dahl.—p. 100.

Tuberculosis in Bornholm After BCG Vaccination.—Changes are reported in the incidence of tuberculosis among the population of the Danish island of Bornholm in the Baltic sea under steadily increased BCG vaccination. Between 1936 and 1940 the first mass examinations were carried out of persons up to the age of 35 years. These studies revealed that persons with a negative tuberculin reaction were predisposed to infection. As the island population became more and more tuberculin-negative, it was decided in consultation with the Danish State Serum Institute, to begin propaganda in favor of increased BCG vaccination. Between 1941 and 1945 extensive vaccination was carried out in the schools. By the end of 1945 about 23% of the entire population had been vaccinated. Most of the vaccinated persons were between the ages of 7 to 20 years. As a result of this increased BCG vaccination the incidence of tuberculosis has decreased perceptibly. At the same time the number of persons whose reactions reverted from positive to negative increased, including persons with a natural positive reaction and those with a BCG-induced positive reaction; this situation necessitated an increasing number of revaccinations. BCG vaccination also changed the age distribution curves of newly reported cases of tuberculosis, so that the former peak at about the age of 20 has now been entirely leveled off. To make the BCG vaccination as widespread as possible, a second mass examination was carried out in 1946 and the entire population above school age were invited to attend. By the end of 1946 a total of 17,563 persons or 33.9% of the population had been vaccinated. Statistical data showed that the annual rate of infection per hundred per year of observation is only 2.5 and that the duration of BCG immunity ascertained by positive reactions to tuberculin drops slowly in the course of years, particularly during the first postvaccination years. New cases of tuberculosis and deaths from the disease are most frequent among persons with negative reactions and less frequent among those with positive reactions, but the incidence of new cases is lowest among those who had been vaccinated with BCG. Between 1946 and 1948 Bornholm fishermen had been catching salmon along the coast of Poland where they made contact with a highly tuberculous population. Two of these fishermen who had a negative reaction to tuberculin and had not been vaccinated were infected. On their return to Bornholm they passed the infection on to younger unvaccinated members of the family, with the result that nine cases of tuberculosis occurred in the course of two years. A similar tuberculous infection in Norwegian fishermen passed on in some Norwegian parishes where BCG vaccination had not been carried out spread widely, with hundreds of persons being infected in a short time. Tuberculosis in Bornholm is on the decline. Immunity in the population will be maintained by continuing with widespread BCG vaccination. Today Bornholm has 48,000 inhabitants and 49.6% of them had been vaccinated with BCG up to the end of 1950. Since 1949, examinations by age groups of 1, 7, 13 and 25-year-old persons have been done by the Bornholm tuberculosis dispensary. In addition all those taking up residence in the island are examined. Each examination consists of a tuberculin test followed by BCG vaccination of all those with a negative reaction, and x-ray screening of all school children and adults with a positive reaction. In addition, systematic examinations of adolescents attending schools, of men in the armed forces, seamen, and school teachers and the now compulsory examination of apprentices are continued. It is hoped that by this method the rate of the infection will be further reduced and at the same time the immunity among the population increased.

Archiv f. Orthopädische und Unfall-Chirurgie, Munich

45:415-562 (April 15) 1953. **Partial Index**

Endogenic Causes of Vertebral Osteochondrosis of the Lumbar Region. H. Erdmann.—p. 415.
Treatment and Evaluation of Sudeck's Syndrome. C. Blumensaat.—p. 451.
*Pathogenesis of Sudeck's Syndrome. K. H. Hackethal.—p. 482.
Surgical Treatment of Irreducible and Old Dislocations and Dislocation: Fractures of the Shoulder Joint. H. Platzgummer.—p. 514.
Endoprostheses of Methyl Methacrylate for Hip-Joint: Operation and Results. O. A. Stracker.—p. 522.
Treatment of Congenital Dislocation of Head of Radius. H. Detzel. —p. 536.
Osteopathia Patellae Juvenilis: Two Cases. H. Classen.—p. 543.

Pathogenesis of Sudeck's Syndrome.—The dystrophy of an extremity, first described by Sudeck in 1900, was later designated as Sudeck's syndrome. According to Hackethal various theories have been advanced to explain the pathogenesis of this syndrome, and the two most widely accepted at present are: the reflex theory of Vulpian-Charcot and the peripheral humoral theory of Rieder. The author feels that neither of these, nor various other theories are entirely satisfactory. On the basis of observations on 27 cases of Sudeck's syndrome of the upper extremity, the author regards the syndrome as the terminal stage of a neurodystrophic process. This neurodystrophic theory explains Sudeck's syndrome as the direct result of a serious dissociated irritation and paralysis of the nerve fibers of a certain area. The most common, but by no means the only cause is nerve strangulation, particularly strangulation of the nerve root. The hub of this process is the spondylogenic nerve root irritation, that is, mechanical root irritation produced by a disproportion between the size of the vertebral foramen and the nerve root diameter. The relative stenosis of the vertebral foramen is an important predisposing factor; and an ascending neuritis is probably the most important factor in the development of Sudeck's syndrome. The author considers causalgia as an especially severe form of Sudeck's syndrome, which is probably most often produced by massive nerve compression.

Archivos de Pediatría del Uruguay, Montevideo

24:73-132 (Feb.) 1953. **Partial Index**

Value of Sodium Salicylate in Prevention of Heart Diseases in Rheumatic Fever. D. Barbato.—p. 73.
*Acute Porphyria: Case. C. A. Escande, C. Boccoleri, R. García Güelfi and L. E. Folle.—p. 83.

Acute Porphyria.—Acute porphyria in children is extremely rare. The authors report a case in a girl who was apparently normal until the age of 12, when she complained of lumbosacral pain and redness of the urine. A clinical diagnosis of acute porphyria was confirmed by the positive results of fluoroscopic and spectroscopic examination of the urine for porphyrins. The early symptoms were followed by abdominal pain and in two weeks by an ascending Landry's paralysis, which progressed to diaphragmatic paralysis. The latter was controlled by the use of the iron lung for 5 days on one occasion and for 35 days on a second occasion. After a stormy course, the symptoms regressed slowly. Cure with complete muscular recovery was obtained in a year. Porphyrinuria was revealed in the father and three out of five siblings of the patient by fluoroscopic examination. According to the authors, porphyria is a hereditary disorder of the metabolism of porphyrins that can be either latent in the form of porphyrinuria or else develop into the cutaneous or the acute forms of the disease. The cause of the metabolic disorder is unknown. The treatment is symptomatic. The authors advise physical and mental rest, an antiallergic diet, administration of 100 to 200 mg. of nicotinic acid amides by mouth daily, daily intramuscular injections of 5 cc. of raw liver extract, use of antibiotics if infections, especially respiratory infections, occur, and administration of calcium gluconate in daily doses of 1 or 2 gm. by intramuscular route. The authors do not specify the duration of the treatment. The use of the iron lung is indispensable in disorders of respiration of neurological origin. Sulfonamides and corticotropin (ACTH) aggravate this disease.

Ärztliche Wochenschrift, Berlin

8:345-376 (April 10) 1953. **Partial Index**

*Clinical Experiences with Treatment of Coronary Insufficiency with Crystalline Visammin Compared to the Efficacy of Nitrite and Theophylline Preparations. A. H. Lemmerz and J. Kranemann.—p. 350.
Comparative Study of Behavior of *p*-Aminosalicylic Acid and Isoniazid During Gestation and Lactation in Experimental Animals. H.-D. Renovanz and K. Schattmann.—p. 354.
Clinical Experiences and Paper-Electrophoretic Study of Serum Proteins in Tuberculous Patients Treated with Vitamin T. E. Lucas and A. Schmager.—p. 359.

Crystalline Visammin in Coronary Insufficiency.—Of 500 men with coronary insufficiency, 50 who did not respond satisfactorily to treatment with nitrites and theophylline compounds were given crystalline visammin (khellin) orally in doses varying from 60 to 300 mg. daily. In 25 of these the insufficiency was characterized predominantly by symptoms of generalized vascular sclerosis; in 19 autonomic disturbances were manifested by the altered dermographic latent period, increased reflexes, and tendency to sweating, which indicated a definite deviation of the vegetative tonus to the vagotonic or sympatheticotonic side. The remaining six patients had cardiac decompensation due to angina pectoris. In the group with predominantly sclerotic symptoms, the optimal dose of the drug seemed to be about 120 mg. per day, which was adequate to render 11 patients free of complaints. The one definite therapeutic failure in this group was a patient with irritation of the pleura. Apparently the irritated pleura maintained the coronary disturbance through viscerovascular reflexes. Fifteen of the 19 patients with disturbance of the autonomic nervous system obtained good results, while 4 were therapeutic failures. In three of the latter pronounced hypotonic orthostatic disturbance was demonstrated by the electrocardiogram made in standing position and by Schellong's experiment. Kymographic recordings showed a pronounced contractile dysfunction of the heart in the fourth patient. Three of the six patients with cardiac decompensation responded satisfactorily to crystalline visammin. One patient with a combined aortic-mitral lesion had been refractory to treatment with Convallaria majalis for two weeks, and another with aortic valve insufficiency had not responded to previous treatment with a proprietary squill glycoside preparation for 17 days. The third patient with a left bundle branch block on a sclerotic basis responded to the small dose of 0.12 mg. of strophanthin combined with 200 mg. of crystalline visammin. The other three patients were therapeutic failures, probably because the dose was too small. The number of patients with cardiac decompensation due to angina pectoris is too small to draw conclusions concerning the glycoside-reducing effect of crystalline visammin that has been observed in three of these patients. Results obtained in the other two groups showed that improvement may still be obtained with crystalline visammin in many patients in whom nitrites or theophylline preparations are ineffective. Even doses as large as 300 mg. were well tolerated. Because of its almost specific spasmolytic effect on the smooth muscles of the coronary vessels, crystalline visammin is contraindicated in orthostatic disturbance of circulation, the symptoms of which depend on the failure of reflex-controlled capacity of circulatory adaptation but not on the spasm.

British Heart Journal, London

15:113-272 (April) 1953

Radiological Diagnosis of Rheumatic Pericardial Effusion. E. M. M. Besterman and G. T. Thomas.—p. 113.
*Incidence and Life Expectation of Children with Congenital Heart Disease. B. MacMahon, T. McKeown and R. G. Record.—p. 121.
Multi-Channel Cathode-Ray Phonocardiograph. E. M. M. Besterman and J. K. Harrison.—p. 130.
Opening Snap of Mitral Stenosis. P. Mounsey.—p. 135.
Caval Refluxes in Angiocardiography and Dynamics of Right Atrium. C. Hedman, J. Lind and C. Wegelius.—p. 143.
Anomalous Right Subclavian Artery. J. N. Pattinson.—p. 150.
Innervation of Heart. G. A. G. Mitchell.—p. 159.
Paroxysmal Ventricular Tachycardia: Clinical Classification. R. Froment, L. Gallavardin and P. Cahen.—p. 172.
Congenital Aortic Valvular Stenosis. M. Campbell and R. Kauntze. —p. 179.
Paroxysmal Tachycardia in Pregnancy. P. Szekely and L. Snaith.—p. 195.
Cardiovascular Disease in Random Sample of Elderly People. H. Droller and J. Pemberton.—p. 199.
Comparison of Operation and Clinical Findings in Mitral Stenosis and Incompetence. A. Venner and H. E. Holling.—p. 205.
Gross Calcification of Mitral Valve. A. Wynn.—p. 214.
Mechanisms of Adaptation to Central-Venous-Arterial Shunt. P. H. Davison, G. H. Armitage and W. M. Arnott.—p. 221.
Phaeochromocytoma. M. Hamilton, J. W. Litchfield, W. S. Peart and G. S. C. Sowry.—p. 241.
Atrial Electrogram in Mitral Stenosis. G. Reynolds.—p. 250.

Life Expectation of Children with Congenital Heart Disease.—An attempt has been made to obtain information on all cases of congenital heart disease in children born in the years 1940-1949 to mothers residing in Birmingham, England. In 199,418 there were 633 cases of congenital heart disease. Diagnosis was confirmed at necropsy in 236, at operation for patent ductus arteriosus in 19, and by a consultant physician in 223. In the remaining 155, the diagnosis depended on the report of the school medical officer in 10 or on certification of the cause of death in 145. The 633 cases of congenital heart disease represented an incidence of 3.17 per thousand total births, and 3.23 per thousand live births. For the years 1940 to 1944, when ascertainment was more complete than in later years, the incidence was 3.62 per thousand total births and 3.73 per thousand live births. Estimation of life expectation at birth suggests that of 10 children with congenital heart disease born alive, 2 die by the end of the first week, another 1 or 2 by the end of the first month, and another 2 by the end of the first year. Between three and four survive to the 10th birthday. For the purpose of considering the frequency of association between malformation of the heart and other congenital malformations, the 145 cases recorded from the death register were excluded because of incomplete data. In the remaining 488, associated abnormalities were observed in 101 (21%). Thirty-one of these had mongolism. Of 18 with mongolism in whom the nature of the heart lesion was known, 14 had septal defects. Except for mongolism there was no noteworthy association of congenital heart disease with any other single malformation. Of the 633 children with congenital heart disease, 338 (53%) were boys. The percentages of males with various types of cardiac malformations were as follows: transposition of great vessels 72%, persistent common truncus arteriosus 47%, pulmonary stenosis 69%, coarctation of aorta 44%, septal defects 55%, and patent ductus arteriosus 39%. A slight predominance of men over women has generally been reported in the literature in series of grouped congenital heart defects.

British Journal of Industrial Medicine, London

10:69-140 (April) 1953

Respirators for Protection Against Mercury Vapour. V. B. Vouk, Z. Topolnik and M. Fugaš.—p. 69.
Action of Flint of Variable Size Injected at Constant Weight and Constant Surface into Lungs of Rats. E. J. King, G. P. Mohanty, C. V. Harrison and G. Nagelschmidt.—p. 76.
Dust Sampling to Simulate Human Lung. H. H. Watson.—p. 93.
Pneumoconiosis of Coal Miners in Scotland. J. Black.—p. 101.
Pilot Investigation into Occurrence of Pneumoconiosis in Large Power Stations in South Wales. I. Davies.—p. 111.
Expected Frequency of Bladder Tumour in Works Populations. R. A. M. Case.—p. 114.
Methyloctylbenzenesulphonate: New Industrial Sensitizing Agent. C. N. D. Cruickshank and H. Howard-Swaffield.—p. 121.
Psychological Handicap in Relation to Productivity and Occupational Adjustment. M. Markowe and L. E. D. Barber.—p. 125.

British Journal of Plastic Surgery, Edinburgh

6:1-72 (April) 1953. Partial Index

*Fate of Preserved Bovine Cartilage Implants in Man. T. Gibson and W. B. Davis.—p. 4.
Preliminary Report on Use of Preserved Homogenous Cartilage Implants. A. L. Schofield.—p. 26.
Oro-Antral Fistula. E. Peet.—p. 32.
Treatment of Ulceration of Legs by Physiotherapy. I. H. M. Curwen. —p. 41.
Lymphangioma of Tongue. F. Robinson.—p. 48.
Control of Extensive Burns. A. D. R. Batchelor.—p. 57.

Fate of Preserved Bovine Cartilage Implants in Man.—Gibson and Davis began to use implants of ox cartilage tentatively in 1948. The cartilaginous part of an ox scapula was obtained fresh from the slaughterhouse, cleaned of soft tissues and perichondrium, and cut into pieces of suitable size. It was then immersed in 1:4,000 thimerosal (Merthiolate) solution, which was slowly heated to the boiling point and maintained there for 10 to 15 minutes; the cartilage was found to warp badly if boiled rapidly. It was refrigerated until needed. At first ox cartilage seemed an excellent material either for skeletal support or for building up contours. No immediate reaction was seen in the tissues, and in only one case was the implant lost from sepsis, which was due to partial necrosis in the overlying flap. As time passed it was noted that most of the implants showed signs of absorption, and after 18 months some had disappeared completely. This progressive absorption of the bovine cartilage implants was also noted by other observers. Recently the authors made a follow-up study on 18 patients in whom they had used implants of bovine cartilage. Four patients could not be traced, in one the implant was lost early from sepsis, and one nasal implant was removed after three months and replaced by bone because the cosmetic result was unsatisfactory. Ten of the remaining 12 implants had been absorbed within two years. A second surgical implant in one case was found to be destroyed more rapidly than the first. Experimental implants in this case compared with controls showed on histological examination that a very marked systemic response to bovine cartilage had developed. This suggests that an antigen-antibody reaction might be responsible for the absorption. Experiments in human volunteers demonstrated that each successive implant showed greater absorption than the preceding one. Absorption occurs first by surface erosion, then by fibrous replacement, and later by dissolution of the cartilage, as the host's reaction increases. The antigenic activity of this relatively insoluble material is related to its surface area. The long survival of block implants, e. g., in a nasal bridge, is considered to be due not only to their relatively small surface area but also to their fibrous encapsulation. The observation that bovine cartilage of one batch may be absorbed much more rapidly than that of another to which the body has not become accustomed raises the question of whether the antibody is specific for a single breed of cattle or even for a single animal. Results in plastic surgery with bovine cartilage are likely to be disappointing.

British Journal of Tuberculosis, London

47:65-120 (April) 1953. **Partial Index**

Tuberculin Test: Comparison Between Jelly and Mantoux Tests. H. W. O. Frew, J. R. Davidson and J. T. W. Reid.—p. 68.
Pulmonary Sequelae of Enormous Dilatation of Left Auricle. N. H. Schuster.—p. 73.
Unusual Type of Reaction to P.A.S. with Review of Its Toxic Effects. J. Evans.—p. 78.
Friedländer Lung Abscess: Treatment by Early Surgical Drainage. K. M. Shaw.—p. 84.
Angiocardiography in Relation to Intra-Thoracic Disease. J. F. Goodwin and R. E. Steiner.—p. 89.
Chronic Disseminated Tuberculosis: Report of Two Cases. P. M. Ward.—p. 94.
Carcinomatous Infiltration of Wall of an Extra-Pleural Space, with Special Reference to Pathogenesis. P. E. Baldry.—p. 98.
*Thoracic Duct Fistula Following Thoracoplasty: Report of Case. C. Cummins.—p. 101.
Polycythaemia Vera in Chronic Pulmonary Tuberculosis. P. Ellman and A. C. Fairburn.—p. 107.

Thoracic Duct Fistula.—Cummins reports the case of a woman, aged 45, with a normal convalescence following a thoracoplasty until the eighth postoperative day, when the wound was exposed for the removal of stitches. The wound was found to be elevated by a long, curved, sausage-shaped tumor that was fluctuant. Aspiration revealed a milky fluid, which was confirmed as chyle. A similar fluid was obtained by aspiration of Sembs' space anteriorly through the bed of the resected first rib. It was apparent that the thoracic duct had been injured during the apicolysis. About 30 oz. (940 cc.) of chyle were removed at the first aspiration. Daily aspirations of the wound region and Sembs' space were instituted, and the second stage of the operation was postponed. During the succeeding 13 days some 260 oz. (13 pt. or 6.1 liters) of chyle were removed by aspiration. At the second operation (three weeks after the first) about 1 qt. (1 liter) of chyle were evacuated; when the region of the fistula was mopped dry, the leak was apparent at the level of the arch of the aorta. Dissection revealed a complete tear of the main thoracic duct, with chyle dripping from the torn end of the caudal segment at the rate of 30 drops a minute. The leaking end of the duct was isolated and ligated, but a search for the other torn end was unsuccessful. The author believes that a shorter rather than a longer period of conservative treatment in the form of aspiration and diet is preferable in cases of chylous fistula. While no rigid rules can be laid down, the production of half a pint or more a day over a period of three weeks would seem to indicate that surgical intervention should be undertaken. Anastomosis to a vein has been successfully performed in some instances. Anastomosis of the cut ends of the duct or repair of the wall is also feasible, but these methods may be technically impossible as well as unnecessarily complicated. Tamponade of the region of the fistula may be required if the cut ends of the duct cannot be located. Since the thoracic duct has innumerable collateral communications with the lumbar intercostal and azygos veins, it has been suggested that the main duct should always be ligated in addition to any local treatment of the tributary. The third available procedure is ligation. This is the simplest method, and in the reported case proved to be effective.

British Medical Journal, London

1:847-896 (April 18) 1953

Magic, Medicine, and Religion: Persistence of an Idea. S. Smith.—p. 847.
Role of Adrenal Cortex in Fluid and Electrolyte Metabolism. F. T. G. Prunty, H. E. M. Kay, G. de J. Lee and R. R. McSwiney.—p. 852.
*Benign Form of Acute Osteitis of Spine in Young Children. A. E. Bremner and G. A. Neligan.—p. 856.
Pathogenesis of Hodgkin's Disease. M. H. Gordon.—p. 860.
Pubertas Praecox Caused by Interstitial-Cell Tumour of Testicle. J. Anagnostou and G. J. Frangopoulos.—p. 861.
Cerebrospinal Fluid Pressure. D. Bowsher.—p. 863.
Transverse Arrest of Head and Occipito-Posterior Position. B. Williams.—p. 865.
Subarachnoid Haemorrhage in Pregnancy. J. N. Walton.—p. 869.

Benign, Acute Osteitis of Spine in Children.—Bremner and Neligan observed seven young children with low-grade pyogenic osteitis of the lumbar spine. At the onset there were symptoms of a mild or moderate febrile illness and of a spinal lesion. Irritability, loss of appetite, and feverishness were noticed in most of the cases. Previously active children had stiff backs and spasms of pain and later objected to sitting or walking or even to being handled. These symptoms increased very gradually for up to five or six weeks and then became stationary or began to improve. The four children with the "hip syndrome" had a well-marked limp at the onset or within the first two weeks of illness. At the onset the ages of the patients ranged between 9 months and 2½ years. X-ray films of the lumbar spine showed narrowing of a disk space, with erosion of the adjacent margin of the body of either or both of the vertebrae bounding it. In one case there was also a posterior displacement of the upper of the two affected vertebrae. In two other cases the anteroposterior view showed an angular scoliosis at the level of the lesion. The children were treated by rest in a plaster bed; one patient was given penicillin in addition. They were allowed up without restriction of activity after periods ranging from 7 to 22 weeks. All remained well after follow-up periods of from 4 to 16 months. There is circumstantial evidence to suggest that the lesion is due to staphylococcic osteitis. The clinical picture strongly resembles that of tuberculous spondylitis. The distinction may be made by the tuberculin skin test, and be confirmed by the appearance of recalcification in the x-ray films within three months of the onset in the pyogenic cases. These children should be immobilized during the active stage of the disease, but activity can be permitted as soon as roentgenograms reveal recalcification.

1:897-952 (April 25) 1953

Hazards of Pregnancy in Women with Heart Disease. C. Bramwell.—p. 897.
Treatment of Genito-Urinary Tuberculosis: Further Report. J. C. Ross, J. G. Gow and C. A. S. Hill.—p. 901.
Significance of Thyroid in Psychiatric Illness and Treatment: Routine Examination with Radioactive Tracer Method. M. Reiss, R. E. Hemphill, R. Maggs and others.—p. 906.
Anticoagulants in Myocardial Infarction. I. S. L. Loudon, J. C. Pease and A. M. Cooke.—p. 911.
Rupture of Heart as Result of Br. Abortus Endocarditis. G. H. Grant and C. L. Stote.—p. 914.
*Observations on Gold Therapy in Rheumatoid Arthritis. R. A. P. Brown and J. P. Currie.—p. 916.
Disseminated Aspergillosis and Moniliasis Associated with Agranulocytosis and Antibiotic Therapy. N. E. Rankin.—p. 918.
*Monilia Peritonitis. P. C. Reynell, E. A. Martin and A. W. Beard.—p. 919.

Gold Therapy of Rheumatoid Arthritis.—Brown and Currie report studies of 220 arthritic patients, 38 of whom were treated with gold. Sixty were treated with copper, 60 with isotonic sodium chloride solution, 21 with arsenic, 22 with physiotherapy, and 19 with acetylsalicylic acid. The courses lasted 13 weeks. Diagnosis of rheumatoid arthritis was based on the criteria of polyarthritis, radiological confirmation or lack of evidence of other joint diseases, normal uric acid content of the blood, negative Wassermann reactions, negative gonococcal complement-fixation tests, negative serum agglutination test for brucellosis, acceptable clinical history and picture, increased erythrocyte sedimentation rate, and increased plasma viscosity. The patients were assessed for improvement at the end of the course, three months later, and one year after treatment. Subjective improvement was based on pain, performance, well-being, and appetite; objective improvement was assessed by joint measurements, erythrocyte sedimentation rate, plasma viscosity, and degree of anemia. The results obtained indicate that the effect of a single course of treatment with gold salts was no better than that of the other methods described.

Candida Peritonitis.—A man was hospitalized with foot-drop, fever, and abdominal pain. Later a wrist-drop developed, and signs of active carditis appeared. Studies did not reveal the cause. Penicillin was given, but bronchopneumonia developed. Because the patient was thought to have polyarteritis nodosa and despite the fact that he was known to have duodenal ulcer, he was treated with 100 mg. of corticotropin and 2 gm. of aureomycin daily. After three days of this regimen he complained of severe abdominal pain and his abdomen became distended. His condition did not permit surgical intervention, but 60 oz. (1.7 liters) of brownish viscid fluid was aspirated from the peritoneal cavity. Administration of corticotropin was stopped, and the stomach was aspirated. Dextrose in isotonic sodium chloride solution was given by the drip method and oxytetracycline (Terramycin) was also given intravenously. Three days later 100 oz. (2.8 liters) of fluid were withdrawn by paracentesis. Large numbers of Candida organisms were found on direct examination of the fluid, and a pure growth of Candida albicans was obtained on culture. Gentian violet was given daily by intraperitoneal injection. The patient died four days later. Necropsy revealed a perforated ulcer in the first part of the duodenum. The aureomycin must have altered the intestinal flora until C. albicans was dominant; when the ulcer perforated as a complication of treatment with corticotropin, this organism obtained access to the peritoneal cavity and set up the infection.

1:953-1006 (May 2) 1953

Combined Chemotherapy in Bacterial Infections. L. P. Garrod.—p. 953.
Clinical Trial of New Oral Diuretic. A. G. Spencer and H. G. Lloyd-Thomas.—p. 957.
Controlled Hypotension in Neurosurgery with Hexamethonium and Procaine Amide. D. Aserman.—p. 961.
*An Outbreak of Diphtheria: Influence of Immunization. C. D. L. Lycett and J. T. A. George.—p. 964.
Pigmented Scars. B. S. Crawford.—p. 969.
Analysis of 50 Cases of Persistent Ductus Arteriosus. F. Starer.—p. 971.
*Reduction of Post-Operative Pain. D. L. Lewis and W. A. L. Thompson.—p. 973.
"New" Rh Antibody Anti-f. R. E. Rosenfield, P. Vogel, N. Gibbel and others.—p. 975.
Three Cases of Suppuration Due to Fusiformis Infection. W. M. R. Henderson.—p. 975.
Experiment to Determine if a Proguanil-Resistant Strain of P. Falciparum Would Respond to Large Doses of Pyrimethamine. S. A. Jones.—p. 977.

Diphtheria and Immunization.—An outbreak of diphtheria caused by Corynebacterium diphtheriae gravis in the urban district of Coseley and the surrounding districts of the administrative county of Stafford, England, is reported. There were 108 cases with 6 deaths during 1951 in a population of 267,250. An additional 31 persons were found to be harboring the pathogenic agent. In Coseley there had been for some years an incidence of diphtheria unusual in England since immunization became general. The outbreak was provided with fertile soil by the low level of immunity of the child population, and was not the result of development of a strain of C. diphtheriae gravis more than usually capable of overcoming the immunity produced by the ordinary diphtheria antigens. Long-term carriers appeared to play no part in the spread, and the large numbers of persons harboring the organism with slight or no symptoms were probably subclinical cases or transient carriers, being the result and not the cause of the outbreak. The infection was probably spread mainly at home rather than at school, although most of the cases were in school children. No explanation could be offered for the remarkable grouping of confirmed cases and of persons found to be harboring the organism in certain areas of Coseley. In the two districts most affected the incidence dropped immediately after mass immunization of the school population. The outbreak emphasized the importance of a constant watch on the proportion of children receiving reinforcement doses of diphtheria antigen, and showed that reliance on the figures prepared for the annual immunization return may be misleading, especially where school children are concerned. The outbreak occurred in an area in every district of which at least 73% of the school population had completed a course of immunization at some previous time. Although 49.1% of all the confirmed cases had some history of immunization, only 12% had been protected adequately within the preceding three years. Of the 22 patients with severe disease, only 7 (31.8%) had any history of immunization at all. Five of the six patients who died had never been immunized, while the sixth, an 8-year-old girl, had only a doubtful history of immunization in infancy. Thus further evidence was provided for the belief that the risk of severe illness or death is reduced for those who have at any time been immunized. The outbreak also demonstrated the greater willingness of the public to accept immunization when they are confronted with an outbreak of diphtheria.

Reduction of Postoperative Pain.—Pain is the chief factor preventing full respiratory excursions and adequate coughing after abdominal operations. In 30 patients between the ages of 31 and 78 who underwent abdominal operations with upper paramedian incisions, 4 cc. of a 2% solution of procaine hydrochloride was injected after closure of the peritoneum and before the patient left the operating room into the rectus sheath through polyethylene tubes, and 3 to 5 cc. of the same solution was injected by the same route every three hours for the next three days. All of the patients had considerable relief from pain a few minutes after the injection was given. The patients were able to carry out their breathing exercises unhampered by pain, movement in bed was facilitated, and ambulation was made more comfortable. Some patients found that passage of urine and flatus was much easier after the injections. There was no delay in healing or any evidence of wound infection. The necessity for postoperative narcotics was greatly diminished, and the incidence of postoperative pulmonary morbidity was reduced. The method was also found to be successful in midline incisions, the tubes being placed between the peritoneum and the linea alba.

Canadian Medical Association Journal, Montreal

68:423-530 (May) 1953

Hydatid Infection in Canada. M. J. Miller.—p. 423.
Experience with Anticoagulant Therapy in Treatment of Coronary Thrombosis. J. A. Lewis.—p. 434.
Studies on Poliomyelitis in Ontario: VI. Additional Laboratory Studies on Cases of Clinical Poliomyelitis Excreting Coxsackie Virus. A. J. Rhodes, E. M. Clark, W. Wood and others.—p. 438.
Malaria in Korean Veterans. T. R. Hale and G. W. Halpenny.—p. 444.
*An Epidemic of Acute Nephritis. R. W. Reed.—p. 448.
Haemolytic Disease of Newborn. B. P. L. Moore.—p. 455.
Complications and Dangers of Radium and X-Rays in Gynaecological Conditions. F. Batley.—p. 460.
Mysoline, a New Anticonvulsant Drug: Its Value in Refractory Cases of Epilepsy. B. H. Smith and F. L. McNaughton.—p. 464.
Relationship of Physiotherapy to Occupational Therapy in Rehabilitation. A. Zinovieff.—p. 468.
Role of Physiotherapy in Pre- and Post-Operative Care. M. Minuck.—p. 471.
Public Health and Head Injuries (Due to Road Accidents). H. Elliott and H. L. Roundthwaite.—p. 475.
Chronic Relapsing Pancreatitis with Carcinoma of Head of Pancreas. M. G. Israels.—p. 480.
Use of Corticotropin and Cortisone in Dermatology. W. S. Maddin and J. L. Danto.—p. 483.

Epidemic of Acute Nephritis.—An outbreak of acute nephritis in a sharply localized rural area is reported. Twenty-one of 22 cases of typical nephritis reported during the period from November, 1951, to February, 1952, were in persons under 17 years of age. There were two deaths from uremia. School and family illness records showed a very high incidence of sore throat during the winter. Throat cultures on 153 persons one month after the last reported cases of nephritis yielded 53 strains of hemolytic streptococci belonging to Lancefield's group A, Griffith's type 12. Carrier rates in the school and family groups were four times as high for those less than 17 years old as for the older group. These rates corresponded well with the incidence of nephritis and sore throat in the two groups over the winter period. Determinations of antistreptolysin O titers indicated recent infection with streptococci in most of those tested. The data presented lend weight to the generally held opinion that hemolytic streptococci play a part in the development of acute nephritis.

Cuore e Circolazione, Rome

37:1-64 (Feb.) 1953. Partial Index

Diagnosis of Atrial Flutter by Means of Graphic Method. S. Contro. —p. 1.
*Late Results of Pneumopericardium in Treatment of Exudative Pericarditis. G. Russo.—p. 14.

Late Results of Pneumopericardium in Exudative Pericarditis. —Late results are reported in seven cases of exudative pericarditis treated with pneumopericardium. Clinical, roentgenological, and electrocardiographic studies were made in four cases from 1 to 11 years after the treatment. Two patients who could not be seen because of a great traveling distance have confirmed by mail that they are well, and one died of acute miliary tuberculosis. The patients' ages at the time of treatment ranged from 15 to 63 years. The exudate was removed with a 50 cc. syringe to assure a slow removal and substitution of the gas for the exudate as this was being removed. In some cases the syringe was left in place for some time to permit complete emptying of the pericardiac cavity and to prevent even the temporary fusion of the pericardiac sheaths. The quantity of gas injected was individualized in each case, and attempts were made to establish a balance between the intrapericardiac and the atmospheric pressure. To prevent adhesive pericarditis, the injection of gas into the pericardium was continued long after all the exudate was removed, namely, until the clinical and roentgenological examinations indicated that the evolutional process was stopped and the inflammation had completely subsided. All the patients tolerated the treatment well, and there were no untoward effects to contraindicate continuation of the treatment. After the first tapping, there was always an improvement in the circulation, with decreased tachycardia, reduction or disappearance of dyspnea and precordial distress, and progressive decrease in the size of the liver. The drop in the venous pressure was always proportional to that in the pericardiac pressure. From five to eight tappings were sufficient for six patients. The other was a 22-year-old man who was hospitalized for one year and needed 58 tappings for removal of about 13 liters of exudate. After each tapping, 220,000 units of penicillin were introduced into the pericardium. At the time of writing three years later, the patient was well and had resumed his job as a carter. Streptomycin was used locally in the patients who were treated in the antibiotic era. This drug was given systemically with *p*-aminosalicylic acid to the patients with tuberculous forms and with sodium salicylate to those with rheumatic forms. The pneumopericardium, in addition to having immediate effects on the circulation and the course of the pericardiac inflammation, prevented all the late consequences of the disease. Adhesive pericarditis was avoided in all the patients. In the four who were followed there were none of the effects that the disease produces sooner or later on the cardiovascular apparatus, and the serous pericardiac layer was completely restored to normal. The author ascribes these excellent results to the fact that the gas refills were continued until the pericardiac and parapericardiac inflammation had disappeared and clinical and roentgenological examinations revealed that the anatomic condition was again normal.

Die Medizinische, Stuttgart

15:475-530 (April 11) 1953. Partial Index

Diabetes Mellitus as Sequel of Trauma. A. Sturm.—p. 475.
Insulin-Creatine Therapy of Diabetic Coma. D. Jahn.—p. 486.
Fatty Degeneration of Liver and Lipotropic Substances. K. Lang.—p. 489.
Pathology of Lipoidoses: I. Cholesterosis. A. Giampalmo.—p. 492.
Cardiac Hypertrophy and Cachexia. W. Berblinger.—p. 497.
*Corticotropin (ACTH) Treatment of Agranulocytosis. H. Schulten and W. Pribilla.—p. 503.

Corticotropin Treatment of Agranulocytosis.—Two women, aged 60 and 57, and a man, aged 53, with agranulocytosis due to drug hypersensitivity were treated with antibiotics and corticotropin (ACTH). Slight improvement in the general condition had resulted in the older woman from treatment with penicillin, but there was no definite improvement in the blood count. From the 15th to the 19th hospital day the patient was given, in addition to penicillin, 50 units of corticotropin daily. In the course of this treatment the number of granulocytes increased from 440 to 1,806 per cubic millimeter of blood, while the number of leukocytes first remained unchanged. Somewhat later the blood picture was restored to normal and a clinical cure was obtained. The older woman was treated with a penicillin-streptomycin preparation (Supracillin) and with corticotropin. There was rapid improvement in the general condition and in the blood picture in the course of this treatment. In the man, rapid improvement of the general condition, with drop of temperature and an increase in the leukocytes (from 1,900 to 10,500) with 82% granulocytes, resulted from treatment with aureomycin and corticotropin (50 units daily). The authors felt that the appearance of the leukocytes in the blood of the three patients was influenced by the administration of corticotropin. The evaluation of a therapeutic procedure in agranulocytosis is made difficult by the fact that this condition tends to resolve spontaneously when treated with antibiotics. The blood picture of the three patients did not show any significant change for several days during which they had been treated with antibiotics alone. This change occurred only after the administration of corticotropin. Treatment of agranulocytosis with corticotropin alone is contraindicated by the well-known fact that corticotropin reduces the general and local resistance of the organism to infection. This effect of the hormone is particularly undesirable in agranulocytosis. Its use in combination with antibiotics is sensible in agranulocytosis because of the control of inflammation exerted by the antibiotics and the increase in the number of granulocytes in the course of treatment with the hormone. It may be lifesaving in the short critical phase of the disease.

Fortschr. Röntgenstrahlen & Röntgenpraxis, Stuttgart

78:391-530 (April) 1953. Partial Index

Intracranial Calcifications as Late Sequela of Tuberculous Meningitis after Treatment with Streptomycin. R. Garsche.—p. 391.
Prospects of Healing of Fractures of Vault of Cranium in Children. H.-W. Pia.—p. 396.
Roentgenologic Aspects of Lungs Following Surgery. S. Di Rienzo.—p. 400.
Technique of Bronchography in Children. P. C. Schmid.—p. 413.
*Esophageal Ulcer in Severe Kyphoscoliosis. R. Haubrich.—p. 419.
*Roentgenologic Phenomenon as Cause of Erroneous Diagnosis in Localization of Pointed Metallic Foreign Bodies in Gastrointestinal Tract. E. Kübler and S. Dortenmann.—p. 429.

Esophageal Ulcer in Severe Kyphoscoliosis.—Twenty-five patients with severe kyphoscoliosis were examined roentgenologically because of cardiac complaints or dysphagia. In two men and three women a peptic ulcer in the esophagus was detected. Esophagoscopy is not feasible as a rule in patients with severe kyphoscoliosis. In one of the five patients in whom it could be performed, it provided additional proof of the ulcer. In the remaining four patients there was no reason for proof by surgical intervention because the patients' symptoms were not suggestive of malignancy. The differential diagnosis had to be based on the roentgenologic findings alone. In most of the cases the ulcer niche could be demonstrated in a typical way as a contrast spot or by radiating folds on lateral as well as on frontal exposures. The localization of the niche always at the site of the greatest concavity was the strongest argument against diagnosis of a diverticulum. Traction diverticula of the esophagus had been described in the literature in cases of kyphoscoliotic, displacement of the esophagus, but they were always observed on the convexity of the lower third, while the ulcer was found exclusively in the middle third of the esophagus. This atypical localization and the unusually high incidence of the condition are closely related. It appears very likely that the middle portion of the concavity of the considerably angular esophagus presents a site of decreased resistance that may be considered as an "esophageal channel" under mechanical stress, in analogy to the "gastric channel" and its predisposition for ulcer. Additional factors, such as a topographically conditioned disturbance of the vascular and nervous supply, incipient peptic digestion due to aberrant gastric mucosa or a rise of the gastric juice resulting from insufficiency of the cardia, and an esophagitis associated with stenosis of the cardia, may contribute to the occurrence of the ulcer at this circumscribed weaker site of the wall much oftener than in an esophagus with a normal course.

Erroneous Roentgen Diagnosis of Gastrointestinal Perforation by Foreign Body.—Two women and a man who had swallowed a knitting needle and a sewing needle, a pin, and a nail, respectively, were examined roentgenologically to decide whether or not the pointed, metallic foreign body had perforated the wall of the gastrointestinal tract. The roentgenologic appearance suggested that in one of the women the knitting needle had perforated the wall of the stomach and the sewing needle that of the colon, and that in the other woman and in the man the pin and the nail had perforated through the wall of the stomach. Laparotomy was performed on all three patients but did not confirm the roentgenographic diagnosis. In order to explain the roentgenologic phenomenon that simulated perforation of the wall of the gastrointestinal tract in these patients, an attempt was first made to reproduce it in the stomach of human cadavers and of dead rabbits. This attempt in the atonic wall of the stomach failed. The phenomenon could, however, be reproduced in experiments made on the stomach of living rabbits. The shadows of the needles that were pressed against the inner wall of the stomach of the living animals were projected beyond the outline of the wall for as much as 1.8 cm., without, however, actually penetrating the wall; this was clearly demonstrated by use of graduated needles. The animal experiments showed that functional elements are the most important of the causes of the roentgenologic phenomenon simulating perforation, while the morphological changes in the tissues (thickening of the gastric mucosa and the finger-like extroversion of the outer layers of the gastric wall) contribute only secondarily to the clarification of this peculiar phenomenon.

Helvetica Paediatrica Acta, Basel

8:1-116 (March) 1953

Leukemia in Childhood Treated with Cortisone and Aminopterin. C. Gasser and R. Cramer.—p. 10.
Whooping Cough Vaccination and Its Contraindications. E. Köng.—p. 90.
*Bone-Marrow Culture in Purulent Meningitis. K. Choremis and T. Athanasiades.—p. 99.
Case of Acute Meningitis Caused by Moraxella Lacunata. M. Pavlatou and T. Athanasiades.—p. 104.
Myelitis After Atypical Pneumonia. R. Goldstein.—p. 107.
Arteriovenous Aneurysm of the Lung and Osler's Hereditary Hemorrhagic Telangiectasis. H. Wissler.—p. 111.

Bone Marrow Culture in Purulent Meningitis.—The valuable information provided by bone marrow culture in typhoid fever and tuberculosis led to a trial of the method in various cases of purulent meningitis. Blood, bone marrow, and cerebrospinal fluid cultures and direct smears from 56 children from 10 days to 14 years of age were studied. At least one culture proved positive in all of the 44 cases in which the specimens were taken in the first days of the disease and before antibiotics had been used. Cultures from seven patients who had had the disease for several days before admission to the hospital and who had received antibiotics were negative. Cultures obtained on the 10th hospital day from five patients who had been treated with antibiotics for approximately one week and were considered cured also proved negative. The rich vascularization of the marrow and the delayed blood flow through its sinuses make it a focus of bacterial retention in which the pathogenic agent in any blood-borne infection can be found more easily than in the peripheral blood. The percentage of positive bone marrow cultures (61.3%) among the 44 patients who had not yet received antibiotics was much higher than the percentage of positive blood cultures (34%). Cerebrospinal fluid cultures in the same patients were positive in 59%, while the direct smears were positive in 65.9%. The pathogenic agents recovered in this series included Meningococcus, Streptococcus, Diplococcus, and Hemophilus organisms.

Hospital, Rio de Janeiro

43:429-558 (April) 1953. Partial Index

*Incidence of Chagas' Disease in Prospective Blood Donors in Blood Bank of São Paulo City. Serologic Survey. C. de S. P. Passalacqua, V. Amato Neto, I. Zatz and A. Damasco.—p. 443.
Prostigmine and Surgery. C. de Carvalho Orecchia and D. Boechat.—p. 449.
Autositic Monphalus Sternopagus Twin Monsters: Report of a Case. F. Moreira Jr., J. Sacramento and A. Pires de Almeida.—p. 507.

Chagas' Disease in Blood Donors.—A serologic study of Chagas' disease (American trypanosomiasis) was carried out on the blood of 536 prospective donors, selected at random at the blood bank of the Santa Casa de Misericordia of São Paulo, Brazil. Most of these persons came from the rural zone of São Paulo, where Chagas' disease is endemic. The survey was followed by complement fixation tests for diagnosis of the disease. Positive results were obtained in 22 persons (4.1%). The percentage of positive results is higher than that previously reported from other blood banks of São Paulo City, probably because the test was done in blood of persons from regions where the disease is endemic. The authors point out the danger of transmission of Chagas' disease in donor blood. They urge the complement fixation test as a routine practice in blood of prospective donors, especially if they live in zones where Chagas' disease is endemic. The test should also be made in persons who had had blood transfusions on the supposition that the disease might have been transmitted through transfusion.

Lancet, London

1:755-804 (April 18) 1953

New Concepts of Poliomyelitis. P. N. Meenan.—p. 755.
Treatment of Carcinoma of Bladder. H. P. Winsbury-White.—p. 757.
Some Developments in Technique of Trigeminal Injection. J. Penman.—p. 760.
Alcohol Pain in Hodgkin's Disease. J. Bichel and P. Bastrup-Madsen.—p. 764.
*Phlebotomy for Haemochromatosis: Effect of Removing 52 Pints of Blood in 16 Months. J. C. Houston.—p. 766.
Specific Water Diuresis Test for Adrenocortical Insufficiency. S. Oleesky.—p. 769.
Parathyroid Tumour with Hyperparathyroidism and Coexistent Gastric and Duodenal Ulceration. A. Elkeles.—p. 770.
*Growth of Bacteria in Intravenous Infusion Fluids. L. Michaels and B. Ruebner.—p. 772.

Phlebotomy for Hemochromatosis.—It is known that only negligible quantities of iron can be excreted by the body, and that normally excessive absorption of iron from the intestine is prevented. In hemochromatosis there is probably a congenital defect in the mucosal block for iron. Consequently slightly more iron is absorbed than can be excreted, and the progressive accumulation of iron in the tissues is accompanied, usually at about middle age, by the characteristic pathological changes of the disease. It has been suggested that the rarity of hemochromatosis in women may be explained by the fact that iron is excreted in menstruation and pregnancy. Study of the age incidence of hemochromatosis lends some support to this hypothesis. Women get the disease later in life than men and almost always after the menopause. Investigating the ages of 202 male and 20 female patients reported on since 1935, Houston found that only two of the women were less than 45 years of age and that one of these two younger women had had amenorrhea for 13 years before dying of hemochromatosis at the age of 34. There is no way of removing iron from the body except by removing blood, which contains 500 mg. of iron per liter. A 39-year-old man with hemochromatosis proved by liver biopsy was bled by venepuncture a pint a week from Nov. 22, 1951, to July 3, 1952. Since July of 1952 a pint has been removed every fortnight. Throughout this period he has continued at work as an accountant, and at no time has he noticed any ill effects from loss of blood. To the time of writing 52 pints of blood had been withdrawn in 16 months. The author believes that such bleeding may reduce the enormous iron deposits and perhaps improve the prognosis. It might be adopted as the treatment of choice for all early cases, at least until sufficient data have been collected to enable its long-term effects to be assessed.

Growth of Bacteria in Infusion Fluids.—A dangerous reaction caused by bacterial growth in the fluid during intravenous infusion was observed by Michaels and Ruebner twice within two years. In both patients serious pyrexia developed while they received intravenous infusion therapy for several days, and in each case many coliform bacilli were found in the infusion fluid. The authors regard it as unlikely that the organisms were present in the fluid originally. In order to determine whether similar but less heavy, and therefore perhaps undetected, infection of infusion fluids occurred in hospital practice, the infusion fluids being administered to 32 patients were investigated. The fluid from the tubing was cultured within 48 hours after the infusion was begun in 19 cases, and within two to four days in 13 cases. All 32 fluids were found to be sterile. The authors also sought to ascertain whether coliform bacilli introduced into infusion fluids could multiply enough to perpetuate the contamination in the apparatus, even though a fresh uninfected bottle was substituted for a contaminated one. All the experiments were made at summer room temperature (about 20 C or 68 F). The organisms used were the coliform bacilli isolated from the aforementioned patients. It was found that considerable multiplication took place when crystalloid solutions such as Hartmann's fluid with 5% dextrose or isotonic sodium chloride solution were used, even if the bottles were changed. In cases of pyrexia of unknown origin in patients receiving intravenous therapy, a bacterial growth in the infusion set should be considered a possible cause. Attention is drawn to the importance of aseptic precautions in the administration of intravenous fluids. During a long-continued intravenous infusion the infusion apparatus and, if possible, the needle should be changed at least once every 24 hours.

1:805-860 (April 25) 1953

Normal and Pathological Physiology of Cerebrospinal Fluid Circulation. G. Schaltenbrand.—p. 805.

Effect of Isoniazid on Tuberculous Lesions of Kidneys. J. C. Dick. —p. 808.

*Isoniazid in Treatment of Female Genital Tuberculosis. T. Barns, H. G. M. Smith and L. M. Snaith.—p. 817.

Mode of Action of Tromexan. R. B. Hunter and G. R. Tudhope.—p. 821.

*Haemorrhagic Diathesis Due to Absence of Christmas Factor. S. van Creveld and M. M. P. Paulssen.—p. 823.

Cervical Aortic Knuckle Which Resembles an Aneurysm. C. Lewis and L. Rogers.—p. 825.

Case of Polyorchidism. P. St. G. Anderson.—p. 826.

Isoniazid in Treatment of Female Genital Tuberculosis.—Women with genital tuberculosis formerly received no active treatment, but since the advent of streptomycin and *p*-aminosalicylic acid, many attempts have been made to eradicate the disease with these drugs. Results have been disappointing because of the frequent reappearance of tuberculous follicles in the endometrium 6 or even 12 months after apparent cure. The effect of isoniazid alone and in combination with streptomycin and *p*-aminosalicylic acid was studied in 43 patients with tuberculous endometritis and 3 with tuberculous cervicitis; 40 showed no evidence of infection after treatment and one became pregnant. The permanence of these apparent cures can only be determined by follow-up at the end of a year or more, but the therapeutic value of the treatment is evident. The unique absence of caseation that characterizes tuberculous lesions in the endometrium probably makes them more responsive to antibiotic therapy than lesions in the fallopian tubes, where caseation is usually present. Relapse after treatment may be due to persistence of fallopian tube lesions, resulting in reinfection. All the patients received 150 mg. of isoniazid daily for 16 weeks; 11 were also given 1 gm. of streptomycin daily and 15 gm. of *p*-aminosalicylic acid daily during the last 8 weeks. No side-effects from isoniazid were noted in any of the patients, but streptomycin therapy was discontinued in one case after 30 gm. had been given, because the patient developed a rash and complained of weakness. Only four patients gained more than 4 lb. (1.8 kg.) in weight and none developed abnormal appetites. The patients were seen periodically throughout treatment, and at each visit the central nervous system was completely examined, the blood pressure and hemoglobin level were estimated, and total and differential white blood cell counts were made. No abnormalities were disclosed by any of these tests.

Hemorrhagic Diathesis Due to Absence of Christmas Factor.—The difference between Christmas disease and another hemorrhagic diathesis (hypoproconvertinemia) is illustrated by the case of a 10-year-old boy admitted to the Children's Clinic in Amsterdam. The first of many severe hemorrhages resulted from an injury at the age of 15 months, but even before this his parents had noticed that he was easily bruised. He was found to have a prolonged coagulation time and a diagnosis of hemophilia was made. His parents were healthy and no trace of a hemorrhagic diathesis could be found in the family. Tests on admission showed a greatly prolonged venous clotting time; normal bleeding time, clot retraction, fibrinogen content, and thrombocyte count; normal capillary resistance; and insufficient prothrombin consumption on coagulation. Various factors contradicted the diagnosis of hemophilia: 1. The patient's plasma in various dilutions exerted a normal coagulation promoting activity on the blood of a known hemophiliac whose coagulation time was greatly prolonged. 2. Normal plasma and the plasma of a person with hemophilia in the same dilutions caused the same reduction of the patient's coagulation time. 3. Intravenous injection of fraction 1 of Cohn (carrier of the antihemophilic factor) did not reduce the patient's coagulation time, whereas transfusion of normal plasma did, e. g., from 5 hours to 22 minutes after an hour. 4. In vitro the antihemophilic factor did not reduce the coagulation time. 5. The fraction active in hemophilia (which can be precipitated) had no effect on the patient's coagulation time, but coagulation was promoted by the supernatant fluid from which the fraction had been precipitated. The patient's condition was not hypoprothrombinemia, because his prothrombin time (Quick) and the prothrombin content were normal. It was not parahemophilia, because the prolonged prothrombin time of normal stored plasma could be reduced to normal by the addition to it of small quantities of his fresh plasma. It was not hypoproconvertinemia, because the determination of proconvertin in his plasma by Owren's method gave a value that was 60% of normal, his prothrombin time was normal, and the addition of a very small quantity of thromboplastin to his blood greatly reduced the coagulation time, which it does not do in hypoproconvertinemia or parahemophilia. These findings indicate that the patient's condition is characterized by a deficiency of a thromboplastin component differing from the one lacking in hemophilia. It now appears that factor 3, previously isolated by the authors from normal thrombocytes, the Christmas factor, and the antihemophilic factor all participate in thromboplastin formation.

1:861-910 (May 2) 1953

Behaviour in Childhood. N. B. Capon.—p. 861.

Amine Oxidase, Pressor Amines, and Cholinesterase in Brain Tumours. E. Bülbring, F. J. Philpot and F. D. Bosanquet.—p. 865.

*Influence of Tolazoline Hydrochloride (Priscol) on Cerebral Blood-Flow in Patients with Mitral Stenosis. H. A. Dewar, S. G. Owen and A. R. Jenkins.—p. 867.

Prognosis and Treatment in Acute Perforated Peptic Ulcer: Review of 206 Cases. J. Gilmour.—p. 870.

*Treatment of Thyrotoxicosis with "Neo Mercazole" (2-Carbethoxythio-1-Methylglyoxaline): Report of 120 Cases. D. Doniach.—p. 873.

Thyrotoxicosis Treated with 2-Carbethoxythio-1-Methylglyoxaline ('Neo Mercazole'). H. Poate.—p. 879.

Anti-Thyroid Activity of 2-Carbethoxythio-1-Methylglyoxaline. A. G. Macgregor and H. Miller.—p. 881.

Cryoglobulinaemia in Alcoholic Cirrhosis. L. L. Griffiths and L. Gilchrist.—p. 882.

Tolazoline and Cerebral Blood Flow.—The cerebral blood flow was estimated by the nitrous oxide method in six patients with mitral stenosis before and after intravenous injections of the vasodilator tolazoline hydrochloride. In the first two patients the cerebral venous blood was sampled through a cardiac catheter, the tip of which had been placed in the left superior jugular bulb under fluoroscopic control. In the remaining four patients, constant rate samples of blood were withdrawn from the superior jugular bulb and a peripheral artery by means of an electrically operated syringe device during inhalation of a nonanesthetic concentration of nitrous oxide for 10 minutes. At least 25 minutes between the first and second estimations were allowed for nitrous oxide desaturation: two to three minutes before the second flow was begun 20 to 30 mg. of tolazoline in 0.8 to 1.2 cc. were injected intravenously. Results showed a striking and significant decrease in the cerebral vascular resistance after administration of tolazoline, averaging about 25%; and an increase in the mean cerebral blood flow per unit weight of brain tissue of a similar order. These changes suggest that the primary action of tolazoline is vasodilatation, its effect on the cerebral blood flow being a function of its effect on the mean arterial pressure. It therefore seems reasonable to regard the action of tolazoline on the cerebral circulation as essentially histamine-like but differing from that of histamine in that effective cerebral arterial pressure is maintained with consequent increase in mean flow rates. Pending both the results of further investigations along these lines and controlled clinical assessment of the practical value of tolazoline, the authors suggest that the use of tolazoline in the emergency treatment of cerebral embolism in young patients with rheumatic heart disease is justified on theoretical grounds, since augmentation of the cerebral circulation by dilating the vessels and increasing the blood flow through them is clearly the aim of such therapy.

Modified Methimazole (Neomercazole) in Treatment of Thyrotoxicosis. — Neomercazole (2-carbethoxythio-1-methyl-glyoxaline) a modification of methimazole (Tapazole) was given a therapeutic trial in 120 patients with thyrotoxicosis who were followed for periods up to 21 months. Of the 120 patients, 30 received the drug as a preoperative medication and 90 as curative treatment. The optimum initial doses of the drug were 15, 30, and 45 mg. daily for patients with mild, average, and severe thyrotoxicosis respectively. Within two to eight weeks 93 became euthyroid and 27 responded more slowly. Nine of the latter group were operated on and the remaining 18 were controlled in three to six months. Goitrogenic reactions were avoided in all except seven patients by careful control of the maintenance dose, which varied from 4 to 20 mg. daily, keeping the basal metabolic rate between 0 and —10%. No toxic reactions were seen. Comparison of the author's results with those obtained with methimazole by other workers suggest that, weight for weight, neomercazole is at least as effective as, and very much less toxic than methimazole.

Lyon Chirurgical

48:257-384 (April) 1953

*Electroencephalographic Evaluation of Anesthesia During Prolonged Surgical Interventions. P. Santy, J.-C. Sournia and J. Courjon.—p. 257.
Abuse of Neurological Operations Directed Against Pain. R. Leriche. —p. 265.
Clinical Documents for Study of Role of Thyroid Secretion in Development of Cancer. M. Dargent and J. Lavigne.—p. 269.
Transpleural Approach to Renal Area. J. Foret and C. Maquinay. —p. 289.
Operative Risk in Lithiasis of Choledochus: II. Indications Offered for Choice of Technique. P. Mallet-Guy and M. Gangolphe.—p. 301.
Postoperative Recurrences in Solitary Nonparasitic Cysts in Bones. J. Creyssel and P. Barry.—p. 322.

Electroencephalographic Evaluation of Anesthesia During Prolonged Surgical Interventions.—Various factors, such as operative shock, anoxia, and the accumulation of CO_2 in the blood, have been blamed for otherwise unexplained deaths during or immediately after surgical interventions. Although the exact mechanism by which such deaths are caused is not known, the brain is admittedly involved, either primarily or secondarily. Early detection of cerebral changes by encephalography during an operation may make it possible to apply a remedy before the resulting disturbances in bodily function become irreversible. Eleven patients undergoing intrathoracic operations lasting from four to five hours were kept under continuous electroencephalographic observation throughout the procedure. The tracings showed six simultaneous leads, and in every case a preliminary control tracing was made in the waking state. A combination of thiopental, nitrous oxide, and curare was used for anesthesia for all the patients, and the tracings confirmed the clinical impression that the period of induction is especially dangerous. Curare had no effect on cerebral activity, but induction of anesthesia with thiopental sodium, approximately 40 cg., prior to intubation produced profound changes. Large slow delta waves (1 to 2 cycles a second) appeared in all the leads for from 30 to 60 seconds, followed by abrupt extinction of the rhythm; the tracing resembled the picture presented after a generalized epileptic attack, a very severe closed skull injury, or in the moments immediately before death. This phase of complete extinction, which is variable in length, is followed by slow waves (2 to 3 cycles a second) and zones of extinction alternately, each lasting for from 5 to 10 seconds. The disturbed period varies in length from 1½ to 8 minutes. These findings clearly show the dangers accompanying the intravenous injection of barbiturates in large doses, and especially at a rapid rate; when the injection is given slowly, the changes are not the same. Electroencephalographic observation shows any variations that may occur in the depth of the anesthesia as the operation proceeds: deep sleep may be followed by periods in which the tracing is almost the same as that of the waking state. Undesirable variations of this kind seldom occur under skilled anesthetic management, but the absence of clinical signs makes it difficult to judge the efficacy of the anesthesia at all times. Changes in the tracings provide the earliest indication of cerebral distress. The difficult period of awakening is influenced by many factors that complicate the tracings, but signs of cerebral disturbances associated with recovery of consciousness can be detected.

Medical Journal of Australia, Sydney

1:429-464 (March 28) 1953

Study of Medicine Overseas. A. E. Lee.—p. 429.
Some Aspects of Rehabilitation and Placement of Incapacitated Worker. W. E. George.—p. 435.
Rehabilitation and Placement of Incapacitated Worker. G. G. Burniston. —p. 440.
Observations on Biliary Calculus Ulcerating into Small Intestine. L. I. Burt.—p. 444.
Adoption and Fostering of Children. M. Gilchrist.—p. 445.
Cough, Faintness and Syncope. M. Glick.—p. 447.

1:465-496 (April 4) 1953

Present-Day Concepts of Epilepsy. E. G. Robertson.—p. 465.
Structural Basis of Epilepsy. L. B. Cox.—p. 468.
Queer Turns—Lesser Known Manifestations of Epilepsy. J. F. Williams. —p. 469.
Drug Treatment of Epilepsy. G. Selby.—p. 471.
Psychological and Social Management of Epileptic Patient. G. Springthorpe.—p. 474.
Microtechnique for Measuring Haematocrit Value. I. Kaldor.—p. 476.
Murray Valley Encephalitis: Contrasting Epidemiological Picture in 1951 and 1952. S. G. Anderson and M. Eagle.—p. 478.

1:497-532 (April 11) 1953. Partial Index

Cancer of Uterus: Wertheim Operation. H. H. Schlink.—p. 503.
Pregnancy and Malignant Disease. R. B. C. Stevenson.—p. 508.
Treatment of Cutaneous Neoplasms. W. C. T. Upton.—p. 512.

Medicina Contemporânea, Lisbon

71:175-292 (April) 1953. Partial Index

*Thrombosis of Internal Carotid Artery: Visibility of Vessels of Posterior Fossa. Egas Moniz.—p. 175.
Vectocardiography of Myocardial Infarction. I. Benzecry, D. P. Stein and P. Cozanel.—p. 183.
Experimental Aortography with Cardiac Puncture. A. de Sousa and B. de Morais.—p. 199.

Thrombosis of Internal Carotid Artery.—The angiographic aspect of the blood vessels of the cerebral posterior fossa has not been reported in the literature. The author reports a patient with the complaint of vertigo of nine years' standing. Two years previously he had a stroke that resulted in left-sided hemiplegia. A presumptive diagnosis of thrombosis of the internal carotid artery was made. Angiography was performed by injection of the opaque substance into the right subclavian artery. Three angiograms were made at intervals of two minutes. The first angiogram showed a thrombus lodged at the point of bifurcation of the internal carotid artery. The angiogram was typical for thrombosis of the internal carotid artery with visualized greatly dilated blood vessels, especially of the external carotid artery and its branches. The medium was seen entering the blood vessels of the posterior cerebral fossa, a small portion of the vertebral artery in the cervical region. The basilar, posterior cerebral, and posterior communicating arteries became visible. In the second angiogram the external carotid artery and its branches were no longer visible, whereas the blood vessels of the posterior cerebral fossa showed up very clearly, being principally the posterior cerebral artery and the cerebellar arteries. In the third angiogram the venous circulation of the posterior cerebral fossa was clearly visible. The mechanism by which blood vessels become visible in the posterior fossa when the opaque substance is injected into the right subclavian artery in thrombosis of the internal carotid artery is complicated. The author believes that in his case the increased blood supply to the right cerebral hemisphere through the enlarged anterior communicating artery was the reason for the improvement in the motor function experienced by the patient in the course of two years.

Minerva Ginecologica, Turin

5:105-160 (Feb. 28) 1953. Partial Index

Clinical, Anatomic and Histopathological Study of Uterine Myomas Operated on After Actinotherapy. G. Valle.—p. 107.
Pelvic Endometriosis: Clinical Contribution to Sampson's Pathogenic Theory. G. Garrone.—p. 119.
Influence of Gynecological Laparotomy on Sensitivity of Skin at Site of Incision. M. Uglietti.—p. 131.
*Experiments with Some Antiseptics Proposed for Disinfection of Hands in Obstetrics. G. Massone.—p. 134.

Study of New Hand Disinfectants.—Test experiments are reported of the activity of three antiseptics for disinfection of hands. The new products were hexachlorophene (Gamophen), Desogen, a quaternary ammonium compound, and Dudolo, a fluid disinfectant consisting of an organic mercury compound to which *p*-chloro-*m*-cresol and *p*-chloroxylenol are added. A five minute scrubbing with the new soap and warm water had more effect than the usual 10 minute scrubbing with soap and warm water followed by a five minute disinfection in a solution containing 70% alcohol. With a 5% solution of Desogen the washing time was reduced to eight minutes of which the first three were used for scrubbing with soap and warm water. With Dudolo in a 1:1 solution the washing time was reduced to six minutes and in this case also the first three minutes were used for scrubbing with soap and warm water. Not only was the washing time shortened with the new products but their antiseptic action was more pronounced and lasted longer. When pilocarpine was used to stimulate sweating, the increase of the bacterial flora on the skin of the hands was much greater in persons who had used the common washing procedure. The most revealing data were obtained in another experiment. It is known that after lengthy operations microscopic defects are present in the surgeon's gloves and that bacteria can pass through them. Some persons wore gloves after washing their hands with the usual method and others after using the new products. They were then made to manipulate sterile material. One-half hour later a few bacterial colonies could already be discovered on the hands of the persons of the first group, and after two hours the number of these colonies had increased considerably. The number of colonies that appeared in the same period of time on the hands of the persons of the second group was much smaller. The positive features of the products were thus proved, although the author could not determine whether they were due to bactericidal or to bacteriostatic action. Except for Dudolo, these antiseptics must be used daily to obtain good results, but this does not contraindicate their use. In addition to their low cost and pleasant odor, these products do not have any toxic effect on the tissues.

Minerva Medica, Turin

44:607-644 (March 10) 1953. Partial Index

Truncus Arteriosus a Rare Type of Congenital Heart Disease: Clinical, Angiocardiographic and Hemodynamic Study of Four Cases. P. F. Angelino and A. Actis-Dato.—p. 613.
*Prophylaxis of Postoperative Vomiting in Patients After General Anesthesia. O. Colombo and G. Calligari.—p. 625.
Myasthenia and Pseudomyasthenia Reactions. A. Salmon.—p. 629.

Prophylaxis of Postoperative Vomiting.—The authors review the literature on the center of origin of postoperative vomiting and report results of a study made on 502 patients in whom surgery was performed under general anesthesia mainly for gynecological lesions. They divided the patients into three groups according to the premedication. The first group consisted of 65 patients in whom premedication was not practiced. The second group comprised 179 patients who were given alkalinizing agents during the day preceding the operation and 1 tablet of phenobarbital and 1 or 2 tablets of histamine-antagonizing agents in the evening. The third group of 258 patients received, in addition to the drugs given to the second group, one or two vials of Cortigen B_6 (each vial contained 12 units of an extract of total adrenal cortex in which epinephrine was not present and 50 mg. of pyridoxine). Glucose and ascorbic acid were also given to some patients of this group. There was vomiting in 16 patients of the first group (24%), 22 of the second (12.5%), and only 14 of the third (6%). There was nausea in 7.7%, 4%, and 3%, respectively. Although the alkalinizing and histamine-antagonizing agents were beneficial in preventing vomiting, better results were obtained when Cortigen B_6 was added.

44:927-958 (April 11) 1953. Partial Index

Low-Grade Fevers. P. Bastiai.—p. 927.
Fever Therapy. E. Antoniazzi.—p. 929.
Clinics and Therapy of Pulmonary Insufficiency. G. Giordano.—p. 936.
*Possible Therapy of Undulant Fever with Oral Administration of Small Doses of Aureomycin and Intradermal Administration of Vaccine. M. Poli.—p. 946.

Aureomycin and Vaccine Therapy in Undulant Fever.—A 42-year-old man, who had had a low-grade fever for 47 days, complained of chills in the evening, pain in the right hypochondrium and muscles of the legs, anorexia, asthenia, headache, and night sweats. On hospitalization his serum was positive for Brucella melitensis. He was given orally 0.25 gm. of aureomycin daily in divided doses every six hours and intradermally polyvalent vaccine containing 10 million bacteria. This therapy was continued for 15 days, after which the vaccine was given alone for three more days. At the same time the patient received orally 0.50 gm. of chloramphenicol (Chloromycetin) daily for five days. This was given to alleviate a pain in the gallbladder area, since Escherichia coli had been recovered from the duodenum. The pain disappeared by the third day and the temperature had returned to normal by the fourth. A low-grade temperature reappeared nine days after the antibiotic therapy was discontinued. A second course of aureomycin was begun and continued for nine days. On the second day the temperature was again normal. A total of 6 gm. of aureomycin was given during the two courses. There were no untoward effects, although each injection of vaccine was followed by an intense local reaction with formation of a large papule. The erythrocyte sedimentation rate decreased rapidly, and the agglutination titer that at the time of hospitalization was 1:2,000 had become 1:4,000 on the fifth day and 1:8,000 on the 11th day. Thus while the antibiotic exerted a bacteriostatic action on the Br. melitensis organisms by arresting their development, the vaccine increased the antibody titer and thus enabled the organism to participate actively in the fight against the infection. Three months later the patient was in excellent general condition and had gained 10 kg. in weight. He complained of a pain in the gallbladder area and was given chloramphenicol orally.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

97:861-920 (April 4) 1953. Partial Index

Disturbances in Circulation of Cerebrospinal Fluid and Their Treatment. A. van der Zwan.—p. 865.
Hypervitaminosis A. H. J. Klein Obbink and C. Nieman.—p. 872.
*DDT Intoxication in an Infant. D. P. R. Keizer.—p. 882.
Value of Prophylactic Vaccination Against Diphtheria. A. L. Noordam.—p. 886.

DDT Intoxication in an Infant.—An infant born in a maternity hospital was placed in a bed in its home with bed clothing that had been heavily powdered with a material containing chlorophenothane (DDT) and pyrethrum. Anorexia, vomiting, diarrhea, muscular spasm, tremor, and mild renal and hepatic changes appeared. Chlorophenothane poisoning was considered the cause of the symptoms. Later, subcutaneous fat induration developed in the extremities and were diagnosed as subcutaneous neonatal adiponecrosis. Since these indurations could not be traced to trauma, it is assumed that these also were caused by chlorophenothane intoxication. After a period of hospitalization, the child was sufficiently improved to be discharged.

Nordisk Medicin, Stockholm

49:527-560 (April 10) 1953. Partial Index

*Diabetes Mellitus and Pregnancy. G. Svanteson.—p. 533.
Endometrial Biopsies in Women Treated with ACTH. E. Secher.—p. 536.
Preinvasive Cervical Cancer: Diagnosis and Treatment. H. Arfwedson and S. Winblad.—p. 537.
Cancer of Uterus and Ovaries with Special Regard to Symptomatology. L. Hagbard.—p. 540.
Urinary Incontinence. P. Westerberg.—p. 542.
Cystometric Method with Continuous Recording. S. Englund.—p. 544.
Neonatal Care of Infants of Diabetic Mothers. S. Joachimsson.—p. 546.

Diabetes Mellitus and Pregnancy.—Svanteson reports 15 cases of pregnancy with diabetes in 14 women. His principle of treatment is close control of the patient's diabetes and pregnancy, prophylactic cesarean section in the 36th week, and immediate transfer of the infant to the children's department of the hospital. Eleven mothers were delivered by cesarean section, one of them twice; three were delivered spontaneously, one with hydramnios and stillborn fetus in the 31st week, one with hydramnios in the 35th week, and one in the 36th week on admission for cesarean section. All the mothers survived. In two cases there was slight albuminuria and in one case marked retinopathy that disappeared during the pregnancy. The infants were without deformities.

Philippine Medical Association Journal, Manila

29:105-148 (March) 1953

Prenatal Syphilis. J. O. Quiason and L. M. Ibarra.—p. 105.
Imperforate Anus with Recto-Urethral Fistula (Report of Case of Five-Day Old Boy). G. F. Gadi and E. B. Gadi.—p. 114.
Challenge of Iatrogenic Disease. R. V. Guiang.—p. 116.
Efficacy of Anti-Smallpox Vaccination by Intradermal Method: (Preliminary Report). N. Victoriano.—p. 120.

Presse Médicale, Paris

61:503-520 (April 4) 1953

*Prophylaxis and Therapy of Phlebitis with Heparin Given Intradermally. C. Olivier.—p. 503.
Gout with Rheumatic Symptomatology. J. Sérane.—p. 504.

Intradermal Administration of Heparin in Phlebitis.—According to Olivier, intravenous administration of heparin combined with oral administration of coumarin derivatives is the method of choice in the treatment of hospitalized patients with recent thrombosis of the deep veins. In certain patients who have recently been subjected to operations for venous thrombosis repeated injections of heparin into the subcutaneous network may prove undesirable. In patients treated at home at a considerable distance from large centers, only heparin may be employed because it does not require control determinations. This therapy frequently has to be discontinued before the patients have resumed walking because of painful reactions and the occurrence of hematoma at the site of the injection following repeated intravenous injections of heparin. The author treated 15 patients with thrombosis of the deep veins or with pulmonary embolism by injecting heparin into the healthy skin in an area not involved by edema, usually into the external aspect of the shoulder. The dose commonly used was 200 mg. in the morning and in the evening, i. e., 1 cc. of a pure 20% solution standardized at 100 I. U. per milligram without the addition of procaine hydrochloride or of a diffusion factor. The intradermal injections did not cause pain or hematoma at the site of the injection. Clotting time tests were carried out according to Lee and White's three tube technique. The test made before the first injection revealed in general that the clotting time was a few minutes less than normal. From the fourth to the eighth hour the clotting time was more than double the normal. This occurred regularly only on the second day of the treatment, suggesting that intradermal heparin therapy should be considered only for maintenance treatment. The thromboembolic disease did not become worse, and there was no recurrence. Hemorrhagic side-effects consisted of a spontaneous hematoma of the lower third of the rectus abdominis muscle in one patient on the 16th day after gastrectomy and five days after the dose of the heparin had been increased to 400 mg. twice a day, and of a parietal hematoma in an emaciated patient on the third day of treatment with doses of 200 mg. of heparin twice a day for pulmonary infarction. In the first patient the clotting time had been increased from 15 to 61 minutes and in the second from 12 to 65 minutes. A dose of 200 mg. twice a day may be employed in patients whose body weight exceeds 132 lb. (60 kg.), but caution is indicated in emaciated patients and on the day following an embolism.

61:627-644 (May 2) 1953. Partial Index

*Genuine Antibiotic Aerosols and Pulmonary Tuberculosis. J. Paraf, P. Zivy, M. Paraf and others.—p. 627.
Physiological Bases of Therapeutic Action of Ultrasonic Waves. P. Chauchard, H. Mazoué, R.-G. Busnel and J. Gligorijevic.—p. 628.
Congenital Renal Malformations in Children. J.-F. Porge.—p. 629.

Antibiotic Aerosols and Pulmonary Tuberculosis.—The concentration of antibiotics in the blood must not only be supplemented by concentrations in the tissues and the lesions if tuberculosis is to be treated successfully but must also be maintained at effective levels for substantial periods. Genuine, or stable, aerosols introduced into cavities and diseased bronchi should produce the favorable conditions obtained by surgical treatment, that is, bronchial disinfection and drainage combined with massive application of antibiotics to the cavity walls. Most of the efforts hitherto made in this direction have been only moderately successful, probably because the antibiotic was rapidly eliminated. The rapid declines in concentration noted in some reports could not have occurred if a truly stable aerosol with negatively charged particles of from 0.5 to 2 μ in size had been used. The authors found that *p*-aminosalicylic acid incorporated in an aerosol meeting these requirements did not appear in the blood until from three to six hours after aerosolization. It quickly attained a maximum level and then declined very slowly, showing that prolonged contact between the antibiotic and the tissues had been secured. Tests proved that the concentration of the antibiotic in the blood was greater than that obtained by oral administration and that it remained at a therapeutic level for a long period. Aerosol treatment properly used in combination with general antibiotic therapy may be expected to increase the percentage of antibiotic cures in pulmonary tuberculosis.

61:645-660 (May 6) 1953. Partial Index

*Preliminary Results of First Center of Systematic Detection of Tumors of the Gastrointestinal Tract, Based on a System of Clinical Predetection by Echelon. G. Albot, M. Parturier-Albot, N. Bernard and others. —p. 645.
Granular-Cell Pseudotumor and Spino-Cellular Epithelioma of Arytenoid Cartilage; Cervical Metatasis of the Epithelioma. J. F. Martin, M. Dargent and J. Feroldi.—p. 648.
*Prolonged Sleep Treatment in Psychiatry. J. Bastié and A. Fernandez. —p. 651.

Systematic Detection of Tumors of Gastrointestinal Tract.—According to Albot and co-workers, systematic mass detection of tumors of the gastrointestinal tract has been practiced successfully for several years at the regional office of the Social Security Fund in Paris. To be economic and to yield significant results, systematic detection of the tumors depends on clinical predetection in stages. Selection of patients by systematic examination of all healthy persons with the aid of fluoroscopy, gastric intubation, rectoscope, and blood tests does not seem to be practicable. On the contrary, preliminary clinical detection by various medical teams has proved effective. The first selection is done by the roentgenologic examination of patients with dyspepsia or mild anorectal or intestinal disturbances who might have cancer; it is done by assistant social workers. The second phase of clinical detection is carried out by controller-physicians of social insurance funds, by plant physicians, and by the physicians of centers for systematic health examinations. It consists of eliminating from patients with minor disturbances suspected of having malignant lesions those whose condition is definitely benign, and sending those whose condition cannot be definitely ascertained to the detection center for tumors of the gastrointestinal tract. There, the third phase of clinical detection takes place. It is carried out by a team of specialists grouped around one or several experts at this center. It is on this "concentrated" group of patients that the technical and financial efforts of the detection center should be expended. Statistical data from 1946 to 1952 revealed that by this method the ratio of detected cancers as compared to the number of patients examined became much higher than with other methods of mass detection. Cancer was detected in 57 of 2,799 patients examined at the detection center for gastrointestinal tumors. Of these 57, 23 had cancer of the stomach, 23 cancer of the rectum, anus, sigmoid or cecum, 9 cancer of the esophagus and cardia, 1 cancer of the liver, and 1 cancer of the pancreas. This is a ratio of 20.3 per thousand, or one case of cancer detected among 50 patients examined, as compared to a ratio of 1 to 3 per thousand detected with other methods. Of 1,329 patients with anorectal disturbance who had a systematic rectoscopic examination, cancer of the rectum was detected in 18, i. e., a ratio of 13.5 per thousand. Seventeen of the 18 patients presented a long course that had not been recognized. Organizing procedures such as those reported by the authors are easy if full advantage is taken of all controls already exerted by social insurance, industrial medicine, and public health examinations. Combined with the findings from the detection center, they should be made available to all practitioners.

Prolonged Sleep in Psychiatric Treatment.—On the basis of Pavlov's concept of the internal inhibition of conditioned reflexes by sleep, the authors treated 10 women with various mental disorders by interrupted prolonged sleep. For the eight days preceding the sleep treatment the patients were given hepatic extracts, vitamins B_1, C, and P, sympathicotonic drugs, and psychotherapy. The patients were subjected to various examinations concerning the heart, the liver, and the kidneys. Treatment by sleep was instituted on the ninth day. Sleep was induced by hypnotics that affect the cerebral cortex, such as sodium bromide, chloralose, and morphine hydrochloride combined with scopolamine hydrobromide; the diencephalon, such as phenobarbital, aprobarbital diethylamine combined with barbital diethylamine, hexobarbital sodium, thiopental sodium; and the autonomous nervous system, such as Phenergan (10-[2-dimethylaminoisopropyl]-phenothiazine), diethazine (Diparcol) hydrochloride, and atropine. There is no uniform dosage scheme for the hypnotics. The dose depends on the type of the nervous system of the patient, his body weight, the nature of the psychopathic process, and the response to the treatment. The hypnotics were administered parenterally and orally five or six times daily at definite and regular hours. Hexobarbital sodium in doses of 0.50 to 1 gm. orally and thiopental sodium in doses of 0.50 to 1 gm. intravenously were used as "sleep starters." An average of 18 to 20 hours per 24 hours of deep or light but always reversible sleep, resembling physiological sleep, was maintained from 25 to 30 days. Only minor physiological changes were observed in the patients; sudden rises in temperature followed by sudden remission occurred once or twice in the course of the treatment; there were also alterations in the arterial blood pressure with a significant drop in the diastolic pressure in two patients with previous hypertension. Of the 10 patients, 4 (those with agitated remittent melancholia, obsessional neurosis, subacute ethylism, and psychic epilepsy) made a complete recovery, while the other 6 were temporarily cured or considerably improved. Protective inhibition of reflexes by sleep may be induced without great risk. It provides the cortex with prolonged rest that makes possible establishment of new regulating mechanisms for the subcortical-cortical connections and better restoration of the balance of the exhausted organism.

Revista Clínica Española, Madrid

48:213-280 (Feb. 28) 1953. **Partial Index**

Syndrome of General Adaptation and Infections. E. Romero.—p. 213.
Differential Diagnosis of Syndromes of Painful Shoulder. J. V. Anastasio. —p. 224.
*Insulin Therapy in Multiple Sclerosis. B. Rodríguez-Arias.—p. 228.
Radiology of Lung After Operation. S. Di Rienzo.—p. 232.

Insulin Therapy in Multiple Sclerosis.—Six patients with typical multiple sclerosis were given insulin subshocks. The insulin injection was given in the morning before breakfast, with an initial dose of from 5 to 15 units of insulin. This was increased daily by 5 or 10 units to a maximal dose of 40 to 60 units or rarely 80 units. The injections were given daily or every other day, with rests on Sundays, up to 15 or 25 injections. The subshock was allowed to last for 1 to 3 hours without reaching the precoma or coma phase. The subshock was discontinued at the end of 3 hours by giving the patient sugar, tea with 100 gm. of sugar, alone or with an intravenous injection of from 10 to 30 cc. of a 40 or 50% hypertonic dextrose solution. Relapsing subshock symptoms were likewise controlled by administration of sugar in an orange-flavored drink, food, and sweets. These doses of insulin produced neurosympathetic symptoms that did not approach precoma or coma phases. The treatment was well tolerated, without accidents or complications. In two cases the treatment was repeated several months after the first for consolidation of good results. In all cases the appetite, nutrition, and general condition of the patients improved. Pain, paresthesia, spasticity, and ataxia were greatly diminished. The patients reported a sense of well-being, which lasted for several months. The treatment is symptomatic. Its palliative or curative effects seem to be due to the stimulating action of insulin on the hepatic functions and on the protection of myelin.

Revista Española de Pediatría, Zaragoza

9:1-164 (Jan.-Feb.) 1953. **Partial Index**

Utility of Tests of Sensitivity to Antibiotics. M. Lust, J. L. Comin, G. Nigrin and Mme. Creteur.—p. 1.
Equations of Growth. J. Teijeira.—p. 25.
Exclusively Serologic Diagnosis of Infantile Visceral Leishmaniosis. R. Marco Ahuir and J. Selfa.—p. 55.
*Rubeolic Embryopathy: Report of Two Cases. E. Miralbell-Andreu. —p. 135.

Congenital Defects Due to Rubella.—Two cases of congenital defects due to rubella are reported. Both infants were born to normal couples who had no familial history of malformations or of congenital cataract. The mother of the first infant had rubella in the first two weeks of her first pregnancy. The infant was seen at the age of 2½ months, and a diagnosis of unilateral congenital cataract of the central type was made. The infant was otherwise normal and had normal hearing. The mother of the second infant had the rubella in the sixth week of her third pregnancy. Her other two children are normal. The infant was seen at the age of 3 days. A diagnosis of bilateral congenital cataract of the central type and of congenital heart disease was made. The nature of the infant's heart disease has not been determined. His hearing is normal. The author advises that gamma globulin be given to a woman who is exposed to rubella in the first trimester of pregnancy. The prophylactic action of the drug lasts 30 days. If any further contact occurs after 30 days, the treatment should be repeated. Induced or natural rubella immunization is not effective.

Revue Neurologique, Paris

88:1-80 (No. 1) 1953

Electromyographic Diagnosis of Myasthenia. F. Thiebaut, F. Isch, and C. Isch-Treussard.—p. 3.
*Epilepsy Caused by Cerebral Tumors (Based on 170 Cases of Epileptogenic Tumors). J.-E. Paillas, J. Bonnal and J. Corriol.—p. 18.

Epilepsy Caused by Cerebral Tumors.—Analysis of 170 cases of epileptogenic tumors showed that epileptic symptoms were most frequent between the ages of 31 and 50 (58%). Epileptic seizures in a child believed to have a cerebral tumor suggest that it is supratentorial, because tumors of the posterior fossa, though frequent in early childhood, rarely cause epilepsy. Epilepsy in an adult is most likely to be neoplastic in origin when it appears after the age of 31. Temporal and frontal tumors account for 60% of the cases of epilepsy in this series; next most frequent as a cause of epilepsy are median and paramedian tumors of the convexity of the hemispheres. The incidence of epilepsy is proportional to the benignity of the tumor; 92 of the tumors causing epilepsy were benign. Generalized grand mal seizures occurred in 66 cases, and were the first symptom of the tumor in 46 patients. Temporal epilepsy, which had the highest incidence (41%), was also often the first sign of a tumor. A true jacksonian seizure or a localized clonus, though the first epileptic manifestation in 31 cases, was the first sign of the tumor in only 21. The value of the various types of seizure in localizing the tumor is limited, because the focus functionally responsible may be distant from the tumor site. Electroencephalographic study showed irritative waves indicative of epilepsy in only 25% of the cases of malignant tumors and only 37.6% of the cases of benign tumors. Epileptic seizures may recur after surgical removal of a cerebral tumor either because the character of the tumor made complete removal impossible or because faulty technique resulted in formation of excessive scar tissue.

Riforma Medica, Naples

67:457-484 (April 25) 1953. **Partial Index**

*Correlations and Reciprocal Influence of Epinephrine and Nor-Epinephrine on Physiopathology of Circulation: Observations on Man. S. Bardelli and R. Monfardini.—p. 467.
Cystic Emphysema in Bronchopulmonary Neoplasms. R. Miceli.—p. 470.

Effect of Arterenol and Epinephrine on Physiopathology of Cardiovascular Apparatus.—Arterenol diluted in 50 cc. of isotonic sodium chloride solution was given intravenously to 10 patients with no cardiovascular abnormalities in doses of 0.1 mcg. per kilogram of body weight per minute for 20 minutes. Five other patients in the same cardiovascular state received the drug intramuscularly in doses of 0.30 mg. An increase in both systolic and diastolic blood pressures followed in all the patients, and there was also pronounced bradycardia. The drug was well tolerated; the only complaint was a slight headache and constriction in the neck, which became more or less swollen. Two days later the same 10 patients were given intravenously a mixture consisting of equal doses of epinephrine and arterenol. The other five patients received a mixture of equal doses of the two drugs intramuscularly. The systolic and diastolic pressures increased to a lesser degree than when arterenol had been given alone; in some instances the values remained unchanged. There was also a lesser degree of bradycardia. Side-effects, when present, were much milder. The vasomotor action of arterenol was thus decreased by that of epinephrine. This seems to prove the hypothesis advanced by Goldenberg that there is in the human organism a hemodynamic equilibrium that is governed by a ratio between these two substances that are in some respects antagonists. An alteration of this ratio because of epinephrine deficiency leads to vasospasm and thereafter to hypertension.

Schweizerische medizinische Wochenschrift, Basel

83:349-372 (April 11) 1953. **Partial Index**

Alkalotic and Acidotic Hypopotassemia as Cause and Sequela of Functional Disturbances of Kidney. A. Labhart and O. Spühler.—p. 349.
Treatment of Hemophilic Hematoma and Hemarthrosis with Short Wave Irradiation. A. Fonio.—p. 253.
Attempt at Diagnosis and Treatment of Atypical Pneumonia Caused by the Parasite Pneumocystis Carinii in Suckling Infants: Preliminary Report. J. Dvorák.—p. 354.
*Lysergic Acid Ethylamide, a New Antipsychotic Drug with Strong Sedative Effect, Obtained from Ergot; Preliminary Report. H. Solms.—p. 356.

Lysergic Acid Ethylamide, a New Antipsychotic Drug.—Twenty-seven subcutaneous injections of lysergic acid ethylamide, a half-synthetic ergot alkaloid, were given to eight normal men. The dose varied from 0.25 mg. to 0.2 mg.; the average amount administered was 0.5 to 0.75 mg. Two distinct phases of the effect of the drug could be distinguished. The first phase of 15 minutes duration was characterized by benign neurovegetative irritative and sensomotor symptoms and by mild discomfort such as occasional salivation, secretion of tears, sweating, ataxia, hyperreflexia, and paresthesia. There was occasional nausea, heavy breathing, and sensation of vibration and tension in the muscles. The second phase of one and a half hour duration was one of psychosis, with a sudden onset of personality changes and simultaneous disappearance of discomfort. The psychopathological aspect was that of a schizophrenia-like condition of asthenia, indifference, and disturbance of volition, with intensive phenomena of depersonalization without sleep. A mild hallucinosis syndrome resulted on nine occasions from injections with higher doses, and in five instances it was associated with exaggerated impulses, decreased inhibition, and unmotivated laughing. The after effect of a single injection of lysergic acid ethylamide consisted of deep night sleep, occasional fatigue, and mild weakness of concentration and memory. Twenty chronic patients with schizophrenia and oligophrenia were given 402 applications of lysergic acid ethylamide, either 0.25 to 1 mg. subcutaneously or 0.5 to 1.5 mg. (one to three tablets) by mouth three times daily. Sedation of paranoid-hallucinatory excitation resulted for one to four hours; hallucinations did not subside but became milder. The patients became apathetic and more indifferent to their illusions. Several patients received 0.25 to 0.5 mg. subcutaneously daily for two weeks and six weeks, respectively, as a continued sedative during the day, with the result that perception was retained but apperception was abolished. Occasionally patients with acute catatonia who had become accustomed to high doses of morphine-scopolamine and barbiturates reacted promptly and favorably to doses of 0.5 to 1 mg. of lysergic acid ethylamide, but in general lysergic acid ethylamide was not sufficient in severe excitation, and the limit of tolerance was usually reached by increasing the dose from 1 to 2 mg. Lysergic acid ethylamide proved to be an effective soporific, inducing sleep for three to five hours in patients with schizophrenia and oligophrenia who were suffering from long-continued disturbances of sleep or mild restlessness during the night. The effect of 0.3 to 0.5 mg. of lysergic acid ethylamide subcutaneously or of 2 tablets of 0.5 mg. orally equaled that of 1 to 3 gm. chloral, 0.8 gm. of sulfonmethane, or 0.5 to 1 gm. of barbital sodium. The effect of the lysergic acid ethylamide on the paranoid-hallucinatory condition of excitation in schizophrenic patients is that of a reversible "chemical lobotomy." The drug is a new type of sedative that belongs neither to the hypnotics or narcotics of barbituric acid or morphine type nor to the sympathicolytics or parasympathicolytics with a predominantly blocking effect on the autonomic nervous system.

Semaine des Hôpitaux de Paris

29:1329-1394 (April 26) 1953. **Partial Index**

White Pneumonia. R. Lutembacher.—p. 1329.
Bacteriotherapy is Still Useful. M. Larget and J.-P. Lamare.—p. 1331.
*Acute Thrombopenic Purpura with Autoagglutination (Demonstration in vitro of an Antiplatelet Agglutinin). J. Dausset, P. Delafontaine, G. Damiens and Y. Fleuriot.—p. 1334.
Treatment of Cardiac Edema by Schemm's Method. A. Abaza and A. Akriche.—p. 1339.
Unilateral Polycystic Kidney. J. E. Marcel.—p. 1351.

Acute Thrombopenic Purpura with Autoagglutination.—Serologic study of the blood of a woman, aged 30, with acute thrombopenic purpura showed previously unreported phenomena of agglutination and destruction in vitro of normal platelets and inhibition of normal clot retraction. Her illness began on Dec. 14, 1951, with general feverish malaise, followed a week later by petechiae on the backs of the hands and slight gingival bleeding. The purpuric manifestations increased and the temperature, which had returned to nearly normal levels, rose again to 39 or 40 C. Pallor indicated the rapid development of intense anemia. No source of infection was found, and careful study of the patient's history failed to show foreign toxins of any kind; in particular, there was no habitual use of hypnotics. The only factor of interest was a subfebrile episode with monocytosis and pronounced acceleration of the erythrocyte sedimentation rate some months earlier. The impossibility of determining the etiology of this purpura with anemia led to the institution of treatment with antibiotics and whole blood transfusions, but the patient's condition deteriorated and she died on Jan. 11, 1952. Autopsy was not permitted. Addition of the patient's serum to suspensions of normal platelets in their own citrated or heparinized plasma resulted in their rapid agglutination and destruction. Clot retraction was completely inhibited when the serum was added in equal parts to whole blood or citrated and recalcified plasma. This inhibitory action, however, took place only when calcium was present. A diagnosis of immunologic thrombopenic purpura with autoagglutination was strongly indicated, but could not be confirmed.

Strahlentherapie, Munich

90:325-484 (No. 3) 1953. Partial Index

Effects of Light in Their Pharmacologic and Physiological Relationships. P. Wels.—p. 325.

Effect of Roentgen Rays and of Cancerogenous Substance "Styryl" on Embryonal Development. H. R. Schinz and H. Fritz-Niggli.—p. 345.

Biophysical Viewpoints in Medical Research on Isotopes. B. Rajewsky and O. Hug.—p. 361.

Methods for Performance of Tests Controlling the Protection Against Roentgen and Gamma Rays, Using New Devices. B. Rajewski and R. Jaeger.—p. 373.

*Value of Blood Picture as Indicator of Damage Caused by Irradiation. H. Langendorff.—p. 408.

*Comparison of Effects of Roentgen and Radium Irradiation on Human Skin. F. Wachsmann.—p. 438.

Blood Picture as Indicator of Irradiation Damage.—In an attempt to determine the tolerance of the organism to irradiation with the aid of blood studies, 30 rats were given irradiation treatment with 2.5 r daily for one year. The other technical factors were 92 kv., 10 ma, 0.5 mm. aluminum filtration, focal-skin distance 80 cm., and daily irradiation time of 13 seconds. Eight of the 30 animals died, 6 of these between the 44th and 52nd week. The white blood cells, particularly the lymphocytes, were studied in 1,574 blood smears. The blood for the differential blood count was withdrawn from the vein of the tail at weekly intervals. The spleen and the testes removed from the animals who died spontaneously and from others who were killed when in a dying state were examined microscopically. Weekly counts of the leukocytes and particularly of the lymphocytes did not show any changes that might have indicated damage due to irradiation. As contrasted with these observations, the histological appearance of the tissues from the testes and spleen showed that these organs had been moderately damaged. Many of the seminal tubules of the testes did not contain any spermatozoa, while spermatoblasts were frequently present in large numbers. Spermatogonia were also present in large numbers. The changes in the spleen consisted of a reduction of the lymphatic tissue, deficiency of some of the germinal centers, and some increase of the erythropoietic tissue. There is evidence that this irradiation damage may be compensated intensively by the regenerative capacity of the blood-forming tissue, the testes and the spleen and that Jacobson's protective humoral factor may be considered significant with respect to the spleen and the hematopoietic system. As a result of his experience, the author states that the blood picture has only limited value as an indicator of irradiation damage after the application of small doses of irradiation for long periods.

Effects of Roentgen and Radium Irradiation on Human Skin.—An attempt was made to compare the effects of roentgen irradiation with that of radium-gamma irradiation. The skin of the thigh of patients with carcinoma and the skin of pigs were exposed to roentgen rays using a tension of 45 to 200 kv., and to radium-gamma rays under such conditions that distribution of the dose with respect to space and time was equal as much as possible, i. e., the size of the field, the relative depth dose and the dose rate were all equal. The "built-up effect" on which an increase of the depth dose of the ultra-hard rays depends was excluded by interposed tissue-equivalent filters made with Trolitul (a type of varnish). Equal doses thus were applied to the irradiated skin. Results showed that in order to produce the same erythematous reaction of medium degree twice as much radium-gamma irradiation dose is required as roentgen ray irradiation. Furthermore it was demonstrated that the "dose-equivalent" of the radium-gamma irradiation depends on the dose, i. e., that with small doses (erythema threshold) approximately three times as much gamma irradiation, and with large doses (epitheliolysis up to necrosis) approximately two to one and half times as much gamma irradiation has to be applied in order to elicit the same skin reaction as with roentgen irradiation using a tension of 45 to 200 kv. It is emphasized that this lesser effect of the radium-gamma irradiation applies only to the human skin and the skin of pigs; it may be explained only by the specific ionization density of roentgen and radium-gamma irradiation.

Tubercle, London

34:99-126 (April) 1953

Concentration of PAS in Blood During Medication with PAS or PAS-Salts. H. Nilsson.—p. 100.

Provisional Law Describing Conditions for Perpetuation of Tuberculous Infection and Principles of Contact; Appendix on Some Applications of Foregoing to Tuberculosis Control Policy. F. A. Nash.—p. 105.

Tuberculin Testing in Day Nurseries. J. T. N. Roe.—p. 110.

*Hypokalaemia with Hypotension Due to PAS Therapy. G. P. Jones and P. O. Leggat.—p. 112.

Hypopotassemia with Hypertension Due to *p*-Aminosalicylic Acid.—The occurrence of hypopotassemia in association with cardiovascular hypotension in a 60-year-old man with chronic bilateral fibrocaseous tuberculosis who had received 27 gm. of streptomycin and 1,008 gm. of sodium *p*-aminosalicylic acid is reported. Following two days of severe vomiting and diarrhea, muscle weakness developed gradually. He was afebrile, with a pulse rate of 70 to 80 per minute. Blood pressure was 140/80. No abnormal murmurs or changes in heart sounds were detected, but an occasional premature beat was heard. The serum potassium level was 10 mg. per 100 cc. The electrocardiogram showed a Q-T interval of 0.5 second. The cerebrospinal fluid pressure was normal, the potassium content of the cerebrospinal fluid being 12 mg. per 100 cc. Since the patient could tolerate a full diet, no additional potassium therapy was given. Serial serum potassium estimations showed a gradual rise and in two days power was obviously returning to the paretic muscles. Two weeks after admission to the hospital full power was present in the trunk and limbs. The blood pressure was 210/110 mm. Hg, the serum potassium level was 20 mg., and the electrocardiographic recordings were normal. It is suggested that the low serum potassium was due to diarrhea and vomiting, the frequent accompaniments of treatment with *p*-aminosalicylic acid, and that the hypotension resulted from the primary myocardial effect of the low-serum potassium. Since many patients are treated at their homes with *p*-aminosalicylic acid, often without close supervision, particular attention should be paid to this toxic complication.

Tuberkulosearzt, Stuttgart

7:187-256 (April) 1953. Partial Index

Silicosis and Silico-Tuberculosis. G. Worth.—p. 187.

Formation of Fistulas in the Bronchial Tree. A. Huzly.—p. 194.

Clinical and Bacterial Resistance in the Course of Treatment of Tuberculosis with the New Drugs: Streptomycin, *p*-Aminosalicylic Acid, Amithiozone (TBI), and Isoniazid. E. Dissmann.—p. 205.

Studies on Resistance Against Isoniazid and Its Effect on Tubercle Bacilli Resistant to Streptomycin. T. I. Gökce, H. Özerengin, T. Ciragöz and A. Öztürk.—p. 214.

Isoniazid in Treatment of Pulmonary Tuberculosis. F. Barth.—p. 215.

*Glycosuria and Hyperglycemia Following Treatment with *p*-Aminosalicylic Acid. G. Robel.—p. 224.

*Frequency of Concurrence of Diabetes and Tuberculosis. W. Siedhoff.—p. 225.

Follow-Up Examination of Persons Vaccinated with BCG. G. Jess.—p. 230.

Value of Mass Roentgenoscopy in the Detection of Pulmonary Cancer. J. W. Guiss.—p. 235.

Glycosuria and Hyperglycemia Following Treatment with *p*-Aminosalicylic Acid.—Robel observed elevation of the blood sugar curve in a number of patients who were treated with *p*-aminosalicylic acid. In most cases the hyperglycemia was reversible, but in one case he noticed a more pronounced glycosuria following *p*-aminosalicylic acid therapy and found that after administration of the drug was discontinued and even after glycosuria subsided the fasting blood sugar curve was persistently elevated despite a diabetic diet. The patient died 11 months after cessation of treatment with *p*-aminosalicylic acid, and the hyperglycemia persisted until death, the average fasting blood sugar value being 180 mg. per 100 cc. The history of the patient suggests that prolonged administration of *p*-aminosalicylic acid is capable of producing irreversible changes in the insular apparatus of the pancreas and that it is advisable that fasting blood sugar determinations be made in addition to the usual tests performed during prolonged treatment with this drug, such as differential blood cell counts, determination of hemoglobin value, and urinalysis. Ambulatory treatment with *p*-aminosalicylic acid is inadvisable in view of the possibility of the development of complications. The reported case recalls similar cases reported by Tempini and Franke in which prolonged administration of *p*-aminosalicylic acid resulted in permanent injury to the insular apparatus of the pancreas.

Frequency of Concurrence of Diabetes Mellitus and Tuberculosis.—In the course of roentgenologic examination of 2,962 patients with diabetes mellitus, Siedhoff discovered that 7.6% had pulmonary tuberculosis. Reports in the literature indicate that the incidence of tuberculosis in diabetic patients varies from 2 to 8.4%. The two diseases concur more frequently in men than in women. The 2,962 diabetic patients observed by the author included 1,158 men, of whom 12.2% had tuberculosis, and 1,804 women, of whom 4.8% had tuberculosis; the ratio of men and women was 2.5:1. In the literature it has been estimated that tuberculosis is from 5 to 10 times as frequent in diabetics as in the general population. The author found that in 1950 in West Berlin tuberculosis was four times more frequent in diabetic patients than in the general population. This patient material was unusual, since the incidence of tuberculosis had increased during World War II and the blockade in 1949. Following the lifting of the blockade in 1949 new cases and recurrences of diabetes increased considerably, particularly among women.

Ugeskrift for Laeger, Copenhagen

115:387-428 (March 12) 1953. **Partial Index**

Relation Between Number of Eosinophils in Blood and Bone Marrow Under Usual Conditions and Under Influence of ACTH. H. Uhrbrand. —p. 387.
*Effect of Mersalyl in Treatment of Pulmonary Stasis of Cardiac Origin Estimated by Determination of Vital Capacity. J. Marquardsen, J. P. Munck and F. Schulsinger.—p. 394.
Value of Cephalin Cholesterol Reaction as Liver Function Test. P. Grønbaek.—p. 399.
Effect of Diphenhydramine (Benadryl) Intravenously on Side-Effects in Intravenous Urography with Diodon. E. Gilg.—p. 404.
Penicillin Treatment of Erysipeloid. A. Ladehoff.—p. 409.
Hematuria After Cystoscopy with Rodalon Solution in Bladder. W. P. Sperling.—p. 412.

Effect of Mersalyl in Pulmonary Stasis of Cardiac Origin.—Marquardsen and his associates consider the administration of mersalyl a rational treatment in pulmonary stasis due to cardiac insufficiency. Of their 16 patients, 5 men and 11 women, aged from 48 to 79, 14 had myocardial degeneration on arteriosclerotic or hypertensive basis and two had mitral stenosis. In nine there was no peripheral edema, six had slight edema, and one patient had marked crural edema. From three to six injections of mersalyl or thiomerin were given, in the dosage of 2 ml. twice weekly. Treatment also included light rest in bed and restricted fluid and salt intake. In most of the cases there was loss of weight accompanied by increased vital capacity, usually with subjective improvement. The results seemed to be more certain in cases without peripheral edema. Measurements of the vital capacity were made by means of a pocket spirometer. The increase in vital capacity occurred within from five minutes to one hour after the injection.

115:439-478 (March 19) 1953. **Partial Index**

Symptomatology in Hypertrophy of Breast. J. Foged.—p. 439.
*Pulmonary Complications in Dysphagia. O. Jepsen.—p. 451.
Case of Acute Porphyria Treated with ACTH. C. Vogel. p. 455.
Varicella-Zoster. S. Dahl.—p. 459.
Training of Patients with Radial Paralysis. J. Thernøe.—p. 462.

Pulmonary Complications in Dysphagia.—Disorders localized in the throat may cause defective swallowing and overflow with aspiration of food and secretion from the esophagus to the air passages and lead to pulmonary symptoms, often with roentgenologic changes. Compression of the trachea due to goiter may cause tracheitis, from which a constant discharge gives rise to and maintains pulmonary symptoms. A further possibility for the origin of pulmonary complications in dysphagia is bronchial compression or involvement in esophageal dilatation or tumor. The pulmonary affection in dysphagia may be bronchitis, pneumonitis, fibrosis, inflammatory bronchostenosis, abscess, or empyema. Jepsen believes the syndrome to be considerably more frequent than the literature suggests. Eleven cases are reported, four of which are described in detail. The pulmonary affection usually appeared as a roentgenologically demonstrable infiltration, as a rule localized to the right lung. After treatment of the cause of the dysphagia, the pulmonary infiltrations sometimes receded. In most cases they failed to regress in spite of recovery from the primary disorder; in such cases fibrosis was believed to be present. By and large three groups are represented: (1) patients having pulmonary complications without manifest dysphagia, (2) patients having dysphagia without manifest pulmonary complications, and (3) patients with borderline cases. The first group is especially important, as acquaintance with the syndrome affords a possibility for earlier diagnosis and treatment of the primary disorder. The pulmonary symptoms connected with the dysphagia may at times be so marked that the dysphagia symptoms are forced into the background and are not mentioned by the patient except on close questioning.

Zeitschrift für Krebsforschung, Munich

59:1-166 (April 15) 1953. **Partial Index**

Relation of Hormones of Adrenal Cortex to Experimental Tumor Growth. R. Schober.—p. 28.
Atypical Mitoses in Walker Tumors and Their Cause. G. Bersch.—p. 44.
Behavior of Constituents of Tumor Cells in Transplantation: VI. Mitosis in Tumor Cells Following Injection of Cell Constituents of Same Type of Tumor. H. Lettré, F. K. Hemprich and B. Spirig.—p. 64.
Morphogenesis of Malignant Blastomas of the Lymphatic Apparatus Inclusive of Leukemia. S. Gräff.—p. 94.
Pathogenesis of Melanosarcoma and Problem of Malignant Degeneration on Basis of New Observations on 42 Tumors in Human Eyes. B. Davids. —p. 108.
*Dye-Stuffs Used in Coloring Foods: Question of Cancerogenesis. A. Wingler.—p. 134.

Cancerogenic Effect of Food Coloring.—Wingler points out that the increasing mechanization of food processing has led to the increasing use of coloring matter and other chemicals in foods. He discusses legal regulations existing in different countries with regard to the use of chemicals in foods, giving particular attention to the efforts made by German physicians to restrict and regulate the use of chemicals and coloring matter in foods. At the convention of German surgeons in 1949 a resolution was passed that basic food stuffs should not be colored, and in 1950 a committee was formed by the German research association to study the coloring of basic foods, in which coloring was not legally prohibited. The committee lists substances that thorough investigation has established as harmless, including among others certain "natural" coloring substances such as carotin, chlorophyll, and lactoflavin. The possible cancerogenic effect of substances used for the coloring of food stuffs has disturbed physicians ever since Japanese investigators in 1936 reported the development of tumors in rats that had been given dimethyl-amino-azobenzene, also known as butter-yellow (because of its use in the coloring of butter and fats). Procedures used in the testing of coloring substances that might prove cancerogenic are described and substances suspected of being cancerogenic are listed. In addition to prolonged feeding experiments on animals, the committee recommended studying coloring substances that are suspected of being cancerogenic with regard to the formation of Heinz bodies in the erythrocytes of cats. Dye-stuffs used in cosmetics and chemicals used in drinking water are likewise being investigated. The committee's chief object is to promote the collaboration between the industry that produces and uses the coloring substances, research bodies aiming to establish their harmlessness, and the legal authorities, so that the use of chemicals in foods will not be harmful to the consumer.

BOOK REVIEWS

J. Meller Ophthalmic Surgery: A Handbook of Surgical Operations on the Eyeball and Its Appendages. With supplement by K. Kofler. Translated and edited by Ray K. Daily, M.D., F.A.C.S., and Louis Daily, Jr., B.S., M.D., Ph.D. Sixth edition revised and enlarged by Professor Dr. J. Böck. Cloth. $12. Pp. 529, with 287 illustrations. Blakiston Company (division of Doubleday & Company, Inc.), 575 Madison Ave., New York 22, 1953.

The descriptions of various operative procedures are concisely and clearly written and are amply illustrated with drawings and photographs. With the gradual improvement in the technique of dacryocystorhinostomy, the indications for the classical Meller technique, however, are gradually becoming fewer. In the chapter on cataract surgery, the statement "Whoever has had experience of performing very many extracapsular extractions, with almost no complications, even in cases with quite immature cataracts, will naturally have but little inclination to change a reliable technique for a more daring procedure" gives the impression that the author prefers the extracapsular technique of cataract extraction. Like most European ophthalmic surgeons, he omits the retrobulbar injection and the generally accepted preplaced or postplaced corneoscleral sutures. The postoperative medication is brought up-to-date by the translators.

In view of the recent advances made with contact lenses and other optic aids, surgery of high myopia is no longer advisable because of its inherent risks and complications. Posterior sclerotomy preceding any definitive operation on an eye with a very high intraocular pressure is inadvisable, particularly since the use of hyaluronidase (in the procaine hydrochloride) in retrobulbar injection, produces practically the same result. In the chapter on corneal transplantation, the complications of slipping of the corneal disk and formation of anterior synechia are seldom encountered today. The more desirable method of edge-to-edge suturing of the graft to the recipient cornea permits early reformation of the anterior chamber.

This edition, like its predecessor, should be a preferred book on surgery of the eye, particularly with regard to operative procedures around the lids and for the classical Meller operation. The translators are to be congratulated on their magnificent piece of work and for the editorial notes that bring the text into more modern focus.

Handbook of Treatment of Acute Poisoning. By E. H. Bensley, M.B E., B.A., M.D., Director, Department of Metabolism and Toxicology, Montreal General Hospital, Montreal, and G. E. Joron, B.A., M.D., C.M., Junior Assistant, Department of Medicine and Department of Metabolism and Toxicology, Montreal General Hospital. Cloth. $2.50. Pp. 201. Renouf Publishing Company, Ltd., 2182 St. Catherine St. W., Montreal 25, Que., Canada, 1953.

This book was prepared as a guide to treatment of acute poisoning for physicians without special experience in toxicology and as a basis for instruction of students in the health professions and in first aid courses. It is divided into two sections, the first of which is devoted to basic principles, a general plan for treating acute poisoning, and discussions of individual methods of treatment. The second section describes common types of acute poisoning, with instructions for managing the patient' before and after arrival of the physician. Brief notes on collection and preservation of samples for chemical analysis, a list of items for an emergency poison kit, and a brief list of recommended books on toxicology are presented in the appendix.

The authors state that, since the book is intended primarily as a guide to treatment of the acute poisoning emergency, certain aspects such as medicolegal problems, chronic intoxications, and the late consequences of acute intoxication are either avoided or mentioned incidental to the main discussion. No attempt is made to thoroughly cover agricultural, industrial, or household chemical products capable of causing injury, although a number of the commoner ones are indexed and grouped with related compounds with which the reader may be more familiar. Dosage recommendations are for adults, and the reader is advised to make appropriate modifications of doses when treating infants and children, with the warning that special care must be exercised in the use of morphine and picrotoxin for such patients. Small children, however, are the most frequent victims of accidental poisoning. Unfortunately, there is little reliable published information on dosages for children, and physicians must rely on experience or resort to empirical dosage rules based on age and weight. Since acute poisoning emergencies frequently call for special dosages, such information should be available in a treatment primer.

Renal Cortical Necrosis and the Kidney of Concealed Accidental Haemorrhage. By H. L. Sheehan, D.Sc., M.D., F.R.C.P., and H. C. Moore, M.D. Publication number 167, American Lecture Series, monograph in Bannerstone Division of American Lectures in Circulation. Edited by Irvine H. Page, M.D., and A. C. Corcoran, M.D. Cloth. $7.75. Pp. 186, with 64 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., [n.d.].

Renal cortical necrosis is a rare, though serious, condition seen frequently after an obstetric complication variously called premature separation of the placenta, abruptio placenta, or uteroplacental apoplexy. In all instances the fetus is killed by the hemorrhage within the uterus, and too frequently the mother dies of renal cortical necrosis from spasm of the renal vessels. In the past there have been several conjectures as to the cause of the condition; this led the authors to make a careful study of 67 autopsied cases.

The results of pathological examination of the kidneys and other organs in the 67 cases form the basis of the book. In many instances the autopsy was performed within two to five hours after death, and special precautions were taken to minimize the effects of pressure or distortion in removal of the organs. There are a number of excellent photomicrographs of kidney sections showing all stages of change, from cloudy swelling to spasm, to thrombosis and later healing. Correlative clinical and histological analysis made it possible for the authors to postulate with considerable certainty the sequence of events in renal cortical necrosis. Damage to the kidney takes place very quickly after the onset of the uterine hemorrhage. Initially, there is spasm of the malpighian glomerulus, which is followed after a few minutes to five or more hours by complete cessation of blood flow to the glomerulus. After this period, a relaxation of spasm takes place, and blood recirculates. When there is a short period of spasm, minor changes are seen in the tubules and other portions of the kidney. Cases of this type are mild, showing proteinuria and casts, and the kidney soon returns to normal function. Severer cases have a secondary spasm of a part of the intralobular artery and progress to renal cortical necrosis. Between these extremes there are many clinical and pathological types. When the spasm relaxes, blood flows to the parts and is promptly thrombosed, thus arresting all further circulation to the part. Release of the spasm within the first two or three hours after the original stoppage of blood flow will prevent gross renal lesions from developing. The authors give no hint as to the probable cause of the original spasm.

The book is well written and readable. The 14 chapters cover the important phases of the condition and, to an adequate extent, related conditions. A full bibliography and an excellent index make it possible to find references in both the literature and the book. It is written primarily for specialists in obstetrics and pathology, and it should be favorably received as a much-needed work in a previously obscure area of information.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Morris' Human Anatomy: A Complete Systematic Treatise. Edited by J. Parsons Schaeffer, A.M., M.D., Ph.D. Contributors: Leslie B. Arey, et al. Eleventh edition. Cloth. $16. Pp. 1718, with 1220 illustrations. Blakiston Company, 575 Madison Ave., New York 22, 1953.

This well-known textbook of anatomy continues to bear the name of its originator, Sir Henry Morris, a distinguished surgeon and teacher, born and educated in England, a president of the Royal College of Surgeons, a member of the General Medical Council, one of the founders of the Imperial Cancer Research Fund, a president of the Section on Anatomy and Histology of the British Medical Association, and an honorary member of the Medical Society of the State of New York. Sir Henry was editor of the first, second, and third editions and coeditor of the fourth edition with J. P. McMurrich of the University of Michigan. From the 5th edition through the 9th, the editor was C. M. Jackson of the University of Michigan, who was followed by J. P. Schaeffer of Jefferson Medical College for the 10th edition and the present edition. Many other authorities, both British and American, have contributed sections to the various editions. New contributors are Ernest Lachman, who collaborated with Raymond F. Blount in preparation of the section on the digestive system; J. E. Markee, author of the section on the urogenital system; C. G. Smith, who collaborated with J. C. B. Grant in revising the section on the musculature; and Mildred Trotter, who with Robert J. Terry rewrote and revised the sections on osteology and the articulations. The other contributors to this edition are the same as in the preceding edition.

Many illustrations have been replaced with new ones, and illustrations have been added, including a number of roentgenograms. To keep the text within a single volume, some items have been set in smaller type and made up in double columns for easier reading. Much investigation remains to be done in anatomy. Recent studies in this field have made certain previous descriptions untenable, and it becomes necessary from time to time to rewrite and revise. That has been well done in this volume. A better grade of paper and less of the smaller type would have contributed to ease of reading.

Die Lungenresektionen. Von Prof. Dr. A. Lezius, o.ö. Professor der Chirurgie an der Universität Hamburg, Hamburg. Mit einem Geleitwort von Prof. Dr. R. Nissen, Director der chirurgischen Universitätsklinik Basel. Cloth. 49.80 marks. Pp. 143, with 149 illustrations. Georg Thieme Verlag, Diemershaldenstrasse 47, (14a) Stuttgart-O; agents for U. S. A., Grune & Stratton, Inc., 381 Fourth Ave., N. Y. 16, 1953.

This is the first of a series of monographs dealing with thoracic surgical problems. Radical surgical extirpation is stressed as the treatment of choice in neoplasms of the lung; however, no such specific therapy can be recommended regarding inflammatory lesions of the lung. Specific indications for removal of a lung, lobe, or segment still differ. It is important, nevertheless, to standardize techniques for such procedures before results can be properly evaluated according to the test of time. The author has also included short, terse sections on diagnosis, indications, and preoperative and postoperative care; these factors cannot be thoroughly separated from operative technique.

Only one of such great experience and unusual technical skill could state that a standardized technique of pulmonary resection does not exist. Techniques are altered by the temperament and dexterity of the surgeon as well as by the numerous physiological anomalies that continually plague, yet stimulate, him. The techniques described are based on the author's experience with 1,000 cases. It is refreshing to note that, in this day of many gadgets, he uses no special armamentarium, since he believes that success of the operative procedure depends on the head and hands of the surgeon rather than on instruments.

The art work by Ingrid Schaumburg is outstanding. These beautiful illustrations reveal the close collaboration that must exist between author and artist if the "feel" of the operating room is to be truly depicted. This book is an outstanding example of authoritative teaching and brillant presentation. It is recommended to anyone interested in lung resections.

The Epidemiology of Health. Iago Galdston, M.D., editor. New York Academy of Medicine Book. Cloth. $4. Pp. 197. Health Education Council, No. 10 Downing St., New York 14, 1953.

Epidemiology is an old discipline that has been associated, in the minds of physicians, with disease and its control. Epidemiology of health is a startling term to the casual reader, but the members of this symposium, referring to history, have shown that for centuries there has been an epidemiology of health as well as an epidemiology of disease. This positive concept expressed in the phrase "a healthy mind in a healthy body" and in the concept of health "as physical, emotional and spiritual well-being rather than mere absence of disease" has been a long-sought goal.

This volume records 15 papers that were the subject matter of the Eleventh Annual Eastern States Health Education Conference. The concept of a positive epidemiology of health is discussed by well-informed physicians in terms of its history and evolution and the way it is currently applied to health practice in the Army, in industry, in tuberculosis, in mental hygiene, in nutrition, and in some of the newer concepts such as geriatrics, preventive medicine in private practice, and public health and health education.

This stimulating book should be read by physicians who are concerned with the attitudes that are developing toward disease and the relation that medical practice has to such special fields as preventive medicine, public health, and the care of the healthy. The foreword is by Howard R. Craig, director of the New York Academy of Medicine, and the first chapter is by Iago Galdston of the New York Academy of Medicine, who also served as editor for the symposium.

Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern: *Einführung in die Enzephalographie (Pneumenzephalographie).* Von Dr. med. habil. Otto Schiersmann, Dozent für Neurologie und Psychiatrie, Chefarzt des Krankenhauses Bethesda, Wuppertal-Elberfeld. Ergänzungsband 64, Fortschritte auf dem Gebiete der Röntgenstrahlen vereinigt mit Röntgenpraxis, herausgegeben von R. Grashey, et al. Second edition. Cloth. 36 marks. Pp. 135, with 192 illustrations. Georg Thieme, Diemershaldenstrasse 47, (14a) Stuttgart O; agents for U. S. A., Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1952.

This is the second and enlarged edition of an introductory monograph on pneumoencephalography that first appeared in 1942. The book deals first, briefly, with the anatomy of the ventricular system and the intracranial subarachnoid spaces and the physiology of the cerebrospinal fluid. Various means of filling the ventricular system (ventricular, suboccipital, and lumbar puncture) and the different contrast media employed in visualizing the ventricular system are discussed. The author prefers the injection of air by the lumbar route, although he has used the suboccipital route extensively. The technique of obtaining satisfactory films and their interpretation occupy the remainder of the text. The illustrations are satisfactory.

This little monograph is truly introductory and cannot be compared to the much more thorough presentations of the subject. There is an index and an extensive bibliography. The latter would be far more useful, however, if the German practice of presenting the references one immediately after the other were abandoned for the arrangement of the authors' names in a column.

Lust-Pfaundler-Husler Krankheiten des Kindesalters: Ihre Erkennung und Behandlung in der Praxis. Von Prof. Dr. Josef Husler, Chefarzt des Kinderkrankenhauses München-Schwabing. Nineteenth edition. Cloth. 29.80 marks. Pp. 700. Urban & Schwarzenberg, Thierschstrasse 11, München 26; Meinekestr. 13, Berlin W. 15, 1953.

Professor Husler has revised and edited this edition somewhat after the plan followed by the editors of Osler's "Practice of Medicine." The volume is in three parts. The first is a survey of the entire field of pediatrics, including diseases of the newborn and infections in the growing child. The second part deals with diagnosis and treatment from the technical viewpoint. Part 3 concerns methods of feeding, including diets auxiliary to milk. There are 155 pages devoted to alphabetic listing of drugs and discussions of poisoning. Special attention is given to congenital defects in the heart and circulatory system, to virus pneumonias, and to the use of antibiotics, including contraindications. This comprehensive book will be useful to general practitioners who read German.

Office Orthopedics. By Lewis Cozen, M.D., F.A.C.S., Assistant Professor of Orthopedic Surgery, College of Medical Evangelists, Los Angeles. Second edition. Cloth. $5.50. Pp. 304, with 191 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1953.

This book actually covers the whole field of orthopedics, at lease with reference to diagnosis. Cases that would be treated in the office have a much more extensive diagnosis and differential diagnosis, while those that would of necessity be hospital cases are mentioned briefly, since these should not be considered a part of office practice of orthopedics. Many of the procedures mentioned can be done in the office if the necessary equipment is at hand; however, a considerable amount of such work is usually done at the hospital.

This edition is up-to-date with regard to treatment and refers to many new methods or new drugs that have been announced within the last six months. While most of the outlined treatment is generally accepted, all of the suggested methods of treatment are not universally accepted, and several are definitely controversial. Many of the drawings and illustrations are borrowed from other books or texts, so that there is a great deal of review rather than original work. This book is chiefly for physicians doing general surgery or in general practice who need a ready reference to office orthopedics; however, the descriptions in the book are inadequate for its use as a textbook of orthopedic surgery.

Gout and Gouty Arthritis. By John H. Talbott, M.D., Professor of Medicine, The University of Buffalo School of Medicine, Buffalo, New York. Modern medical monographs, 7. Cloth. $4. Pp. 92, with 32 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1953.

This monograph is the result of 20 years of laboratory investigation on uric acid metabolism and clinical study of gout. The more recent biochemical advances in this field are recorded, with emphasis on clinical aspects.

Most of the phases of gout are covered briefly. Of particular interest is the discussion of intermediary metabolism of uric acid, which includes a review of the precursors of uric acid, the miscible pool, and turnover rate of labeled uric acid. Of equal interest is the section on concentration of urates in serum and renal exchange of urates. A discussion of probenecid (Benemid), a uricosuric agent, is well presented. The remainder of the material covers symptoms, diagnosis, and treatment of gout.

While the roentgenograms are good, their value would have been enhanced if photographs had been included to coincide with the various roentgenologic phases. The bibliography is fairly comprehensive. The material is accurately presented, although the theory that a liberal intake of protein has no effect on the course of this disease is not entirely acceptable. The book is well written, easy to read, and is highly recommended to those interested in gout and gouty arthritis.

Lind's Treatise on Scurvy: A Bicentenary Volume Containing a Reprint of the First Edition of a Treatise of the Scurvy by James Lind, M.D., with Additional Notes. Edited by C. P. Stewart, Ph.D., D.Sc., and Douglas Guthrie, M.D., F.R.C.S.E. [Originally printed by Sands, Murray, and Cochran, Edinburgh, for A. Millar, in the Strand, London, 1753.] Cloth. 45s. Pp. 440, with 4 illustrations, Edinburgh University Press, Old College, South Bridge, Edinburgh 8 [sole agent: Oliver & Boyd, Ltd., Tweeddale Court, 14 High St., Edinburgh 1], 1953.

Although this book was published 200 years ago to demonstrate that scurvy could be prevented and cured, it is still surprisingly modern in outlook and in literary style. Lind's treatise on scurvy not only led to the virtual disappearance of the disease in civilized communities, but through its presentation of the subject, with censure of muddled thinking and superstition, emphasis on careful observation and controlled experiment, and reliance on facts and rational interpretation of them, it has attained recognition as one of the great medical classics of all time. The reprinting of this book, together with additional notes giving a short biography of Lind and a summary of the present status of vitamin C, pays tribute to a man who received little attention during his life. This is an eminently readable book and deserves careful study.

Patients Are People: A Medical-Social Approach to Prolonged Illness. By Minna Field. Cloth. $3.75. Pp. 244. Columbia University Press, 2960 Broadway, New York 27; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, 1953.

Many years experience as a social service worker in a large chronic disease hospital (Montefiore Hospital, New York) form the background of this author. She has found that the problems of chronic illness are complex from all points of view, medically, socially, and psychologically. Montefiore Hospital for many years has acted as a sort of a laboratory in trying out new methods of caring for the patient with a long illness. For instance, the home care now carried on in many cities was initiated at Montefiore Hospital in 1947. How to handle the rapidly increasing number of chronically ill and aging patients as a family or community problem still defies adequate solution; therefore, many methods must be tried out on a pilot scale for the next several years. It would be a mistake, as the author points out, to set up a rigid over-all scheme on a national level at this time. The many facets of this gigantic medicosocial problem are competently and dispassionately discussed. This book should be read by all who are interested in human aspects of chronic illness.

Die geburtshilflichen Operationen: Ihre Ausführung und Anwendung, ein Lehrbuch für Studenten und Gebrauchsbuch für Ärzte. Von Prof. Dr. Med. Heinrich Martius, Direktor der Universitäts-Frauenklink Göttingen. Seventh edition. Cloth. 34 marks. Pp. 290, with 268 illustrations. Georg Thieme Verlag, Diemershaldenstrasse 47, (14a) Stuttgart-O; agents for U. S. A., Grune & Stratton, Inc., 381 Fourth Ave., N. Y. 16, 1953.

In spite of the fact that successive editions of books on operative procedures become larger and contain more illustrations, this one is not larger than the last and contains 13 less illustrations. This is because modern operative obstetrics has become simplified, and several surgical procedures have become obsolete. The changes in this edition are not many, presumably because operations in obstetrics have not changed much, nor have there been any significant surgical advances in obstetrics. This small book is full of excellent advice concerning the indications for, and the technique of, practically all obstetric operations. The vast experience of the author as a practicing obstetrician and as a teacher is evident throughout the book. The illustrations are clear, instructive, and numerous. For anyone who can read German, this book is highly recommended.

Food for Your Heart: A Manual for Patient and Physician. By Department of Nutrition, Harvard School of Public Health, Harvard University, Boston. This manual has been reviewed and endorsed by Council on Foods and Nutrition, American Medical Association. Paper. 25 cents. Pp. 48. American Heart Association, Inc., 44 E. 23rd St., New York 10, 1952.

The busy physician pressed for time to explain the "whys" and "wherefores' of necessary diet restrictions to his patients with cardiac conditions will welcome this booklet of the American Heart Association. Useful facts and practical directions are presented in simple, nontechnical language easily understood by the average patient. Tables of the sodium content of foods and water supplies are included in the appendix. This manual, prepared by the Department of Nutrition at Harvard University, has been reviewed and accepted by the Council on Foods and Nutrition of the American Medical Association.

Einführung in die pathologische Physiologie. Von Professor Dr. Max Bürger, Direktor der medizinischen Universitätsklinik Leipzig, Fourth edition. Cloth. 42 marks. Pp. 561, with 193 illustrations. Georg Thieme, Thomaskirchhof 21, (10b) Leipzig, C. 1, 1953.

Impressive both in appearance and in content, this book covers thoroughly the field of functional disturbances of the various systems of the body. The author assumes that his readers are solidly grounded in anatomy, physiology, and biochemistry, but he provides a wealth of illustrations, tabular data, and chemical information for the benefit of those whose command of these subjects is weak or not up-to-date. The broad pages are not easy to read; a two column page would be preferable. There is a good index. The book can be recommended as comprehensive, scholarly, and modern.

QUERIES AND MINOR NOTES

TREATMENT OF HYDROFLUORIC ACID BURNS

To the Editor:—*Please give an opinion on the use of "triple dyes" and calcium gluconate locally for the treatment of hydrofluoric acid burns. I have had misgivings about the routine use of calcium gluconate in such places as the finger tips, especially when the burns are believed to be mild.*

John E. Maley, M.D., Ann Arbor, Mich.

Answer.—The following treatment is based on the experience of a consultant who, over a four year period, observed from 10 to 20 burns a week of varying degrees caused by hydrofluoric acid of varying strengths. The treatment as finally elaborated produced no deformities, disabilities, or compensation losses over more than two years. Such a program involves prompt treatment with water at the place where the accident occurred and removal of the patient to the medical department, where judgment is made as to the extent of further treatment necessary. The success of this treatment lies in the emphasis on meticulous care during the initial stages. This experience has resulted in a refusal to make a judgment as to definitive treatment until at least 24 hours have elapsed. In essence, the treatment consists of immersion in water (never a neutralizer) for not less than 30 minutes and up to four hours. This is followed by application of packs saturated with glycerin, which are changed every four hours. On the second day, the burns can be classified as to whether further damage will occur or only dressing changes will be needed for a day or two. Because hydrofluoric acid has a tendency to prolong its action on the tissues for four or five days, in contrast to other acids, this decision on the second day is extremely important. The patient is always given the benefit of any doubt about whether the burn is progressive. If the decision is made that the injury could result in a second or third degree burn, further treatment consists of meticulous cleansing of the areas involved according to surgical standards and use of the compression techniques described by Blair, Koch, and Mason. Ample quantities of finely powdered tantalum oxide is blown on the area with special apparatus. The tantalum oxide powder has no bacteriostatic or bactericidal properties, but, on the other hand, it cannot possibly enter into a chemical reaction with any of the body tissues or fluids. It is, therefore, as nonirritating a dressing as could be used. In addition, a physical factor is involved in its use in that this powder, which has been passed through a 400 mesh screen, has enormous surface area and creates tremendous capillary attraction when applied to oozing wounds. Any such oozing creates a tough, nonirritating cover when tantalum oxide is used. The dressing applied on the 2nd day by the compression technique is not removed until the 9th or 10th day.

This consultant stopped using calcium gluconate injections locally, because, in the majority of his cases, such injections contributed to sloughing, which resulted in the need for plastic surgery in many cases. Burns underneath the finger nails present a distressing problem because of the physician's tendency to delay treatment in the hope for spontaneous improvement. It is far better to do a fairly radical removal of the distal third of the nail whenever a patient complains of pain in that region than to procrastinate in the hope that the pain will go away. Such surgical removal of the nail gives immediate relief. In eye burns, initial treatment with water for not less than four hours will prevent injury if such treatment can be started within 15 to 30 minutes after the acid has entered the eye. Under no circumstances is the use of any neutralizing solution advocated. The use of triple dyes was discarded by this consultant more than 20 years ago. There are much better ways to promote wound healing than by the use of antiseptics of that nature.

CORTISONE OR CORTICOTROPIN IN RHEUMATIC FEVER

To the Editor:—*Is it wise to give cortisone or corticotropin (ACTH) to all patients with acute rheumatic fever?*

M.D., Utah.

Answer.—Determination of the exact phase of rheumatic fever during which administration of cortisone or corticotropin can be expected to produce best results has not been achieved. Effects observed from use of these hormones in rheumatic fever are as follows: suppression of fever, amelioration of polyarthritis, slowing of tachycardia, improvement of the "toxemia," improvement of appetite, lowering of the erythrocyte sedimentation rate, improvement of atrioventricular conduction, improvement of anemia, and restitution to normal of abnormal levels of blood proteins. Much time will be required before a determination can be made of the effects induced by these hormones on eventual cardiac lesions. Important observations reported since announcement of the original discovery include the following ones: properly administered, these hormones may cause reduction in the size of the heart; if withdrawn prematurely, reactivation of the rheumatic process may occur; recurrences are not prevented; preexisting organic murmurs are not abolished; signs of pericarditis, with or without effusions, may disappear rapidly; chorea, when present, has been observed to disappear promptly; subcutaneous nodules may soften, diminish in size, or disappear during periods of administration of these compounds; congestive heart failure accompanying acute rheumatic fever may improve; and in some instances, cardiac murmurs associated with dilation of the heart disappear rapidly. The latter effects may result from the anti-inflammatory effect of cortisone or corticotropin on the myocardium, and thus, congestive heart failure is not a contraindication to the use of these hormones.

With these principles in mind, general rules may be suggested on which to make decisions about use of cortisone or corticotropin in treatment of rheumatic fever. It seems reasonable that these hormones be used in instances in which attacks are severe, that is, when fever is notable, when joints are considerably swollen and painful, when tachycardia is present, the leukocyte count is elevated, and electrocardiograms disclose disturbances of conduction. Either cortisone or corticotropin should be administered in acute rheumatic fever in adequate doses and should be given for at least four to six weeks, if possible. Consideration should be given to the metabolic disturbances these hormones induce. Salt intake should be limited, adequate amounts of proteins should be made available, and precautions should be taken to prevent excessive gain in weight due to a large intake of calories. When the time arrives for withdrawal of cortisone or corticotropin, this should be undertaken slowly rather than abruptly. The dose should be lowered by decrements of 12.5 to 25 mg. of cortisone or 15 to 10 units of corticotropin. If signs appear suggesting that the disease is becoming reactivated, the dose should again be increased for periods of several days to several weeks. Subsequently, the amount administered should again be gradually reduced. In general, before administering cortisone or corticotropin to a patient with acute rheumatic fever, the physician should observe the patient for a few days. The attack may clear spontaneously, that is, febrile temperatures may return to normal, rapid pulse rates may become slow, elevated leukocyte counts and sedimentation rates may return to normal, and toxicity and arthralgias may disappear with little treatment other than bed rest.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

ABORTIONS AND EXPOSURE TO LEAD

To the Editor:—*A patient has just had her second spontaneous abortion, both at three and one-half months gestation; the first occurred in June, 1952, the second in March, 1953. During her second pregnancy, she was taking prophylactic Proloid (a thyroid preparation) and diethylstilbestrol. Her last menstrual period occurred Nov. 4, 1952. She had no symptoms of abortion until the event took place with typical bleeding and cramps. She has been working with lead styphnate and butyl acetate since November, 1950. Could there be any connection between the abortions and the patient's exposure to these chemicals?*

M.D., New York.

Answer.—Lead could have induced the abortions, provided sufficient exposure occurred, but it is recognized that other causes could have operated in bringing them about. If this patient has resumed work, it may prove possible to appraise the extent of exposure. Since lead styphnate commonly is handled in small quantities and sometimes wet, determination of lead in the general workroom atmosphere may be without value. The exposure, if any, is likely to be sharply local and may represent "hand-to-mouth" transfer, even though gloves may have been worn. Particularly if this patient has resumed work, but even if she has not, the urinary level of lead should be determined. In addition, although it is not a conclusive test, examination for cellular stippling on a quantitive basis should be done, and the basophilic aggregation test should be conducted. If other persons are engaged in identical work, some or all should be tested for lead in the urine and blood; however, negative results in other employees may not be significant, since exposure may have been strictly individual. Exposure to lead on the part of the husband would be significant and should be determined.

EXTRASYSTOLES

To the Editor:—*A 40-year-old physician has had ventricular extrasystoles for five years. Complete examination has not revealed any pathological condition. Electrocardiograms made by different cardiologists show the extrasystoles to be irregular in frequency (every 4, 6, or 12 beats) and especially strong in the supine position. There have never been signs of myocardial damage. The gastrointestinal tract was examined roentgenographically, with no abnormal findings. The patient's activities are undisturbed; however, these premature beats have become annoying, and the patient has to take 3 grains (0.19 gm.) of quinidine three or four times a day to eliminate them. As soon as he stops treatment, they return. 1. Can quinidine in this amount be taken without harm over a long period? 2. If the heart becomes refractory to quinidine, what other drug can be used? 3. Will this condition cause, in the long run, any other cardiac disturbance? 4. What else besides quinidine and psychotherapy might be of benefit to him?* *M.D., New York.*

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—1. Quinidine can be taken over an indefinite period without cumulative toxic effects, other than the acute effects that can result from overdosage. 2. The use of quinidine is not characterized by the development of refractory states. It is unlikely that the patient's heart will become refractory to it. 3. There is no definite evidence that extrasystoles of the type described cause myocardial damage or any other cardiac disturbance leading to shortening of life expectancy. 4. Other suggestions, in addition to use of quinidine and psychotherapy, that might be helpful include (*a*) the use of a mild sedative, such as barbiturates and bromides; (*b*) abstinence from use of coffee, strong tea, cola drinks, and tobacco, any one of which may aggravate extrasystoles; in addition, extrasystoles may be aggravated in some patients by various forms of alcoholic beverages, whereas in other patients these factors seem unimportant; (*c*) it is suggested that these patients make a point of getting at least eight hours sleep at night so that they are not unduly nervous from chronic fatigue.

Answer.—The problem of ventricular extrasystoles is frequently encountered. 1. Quinidine taken in amounts of 3 grains three or four times daily can be taken without harm over such a long time, especially since this patient seems to have experienced none of the usual disagreeable sensations following its prolonged use, such as tinnitus, vertigo, and nausea. Commonly, 1 grain (0.06 gm.) taken three to five times daily will be found as effective as the larger doses mentioned. 2. There is a possibility that after prolonged use quinidine will lose its effectiveness; however, discontinuing use of the drug for one month usually restores its effectiveness. 3. In this consultant's experience, premature ventricular contractions on a nonorganic basis have not resulted in myocardial damage. Such an arrhythmia, however, if projected over a long period, frequently becomes progressively aggravated and more refractory to management. 4. Most premature ventricular contractions (extrasystoles) have an activating, exciting, or instigating factor. In this case, the gastrointestinal tract was found normal on several roentgenographic examinations; however, other sources of infection must be ruled out, notably the gallbladder, nose, throat, mouth, and teeth. More important is a careful study of the patient's habits. Tobacco is a frequent cause of ventricular extrasystoles. Alcohol, strong coffee, and tea are frequently responsible. Pent-up emotions, worry, and fear are common causes, in which case the proper management is psychiatric plus the use of mild sedation in conjunction with quinidine.

EMERGENCY TREATMENT OF ADRENOCORTICAL INSUFFICIENCY

To the Editor:—*In Queries and Minor Notes in* The Journal *March 7, 1953, is a discussion on cortisone administration, in which it is stated that when certain conditions of stress ensue in the wake of previous cortisone therapy the drug be readministered to counter effects of suppressed adrenocortical function. Severe intercurrent infection is mentioned as such a stress situation. I have gained the impression from published reports of animal experiments that minor infections may become overwhelming in the presence of cortisone. If this is the case, it occurs to me that in the presence of infection another form of substitution therapy might be more beneficial. Can you clarify this for me?*

Roger D. McKenna, M.D., Madison, Wis.

Answer.—In the event of increased stress, such as might be caused by severe infection, burn, a surgical procedure, traumatic injury, hemorrhage, or other form of shock, the patient who also has adrenocortical insufficiency must be supplied exogenously with an adequate quantity of adrenocortical hormones. This applies whether the adrenocortical insufficiency is temporary, as in the case of rheumatoid patients who have been receiving cortisone, or permanent, as in Addison's disease. At present, the most expeditious way to supply such patients with adrenocortical hormone usually is to administer cortisone; extra salt and desoxycorticosterone also are necessary in some cases of sodium and chloride depletion not adequately managed by the administration of cortisone alone. If the patient has been receiving corticotropin the dose may be increased during the period of stress, if the adrenal cortexes are capable of responding; however, administration of corticotropin alone does not constitute adequate emergency treatment of adrenocortical insufficiency when the adrenal cortexes are temporarily atrophic, since several days of stimulation by corticotropin may be required to achieve adequate production of adrenocortical hormones. The dosage of cortisone is of greatest importance in this problem. Grossly excessive doses, such as were used in the animal experiments probably referred to in the query mentioned, do interfere with the normal reaction of tissues to infection; however, doses in the range of the body's requirement for the particular stress do not impair but rather strengthen the body's defenses. Unfortunately, the exact requirement of adrenocortical hormones at any one time cannot be precisely determined in advance; doses must be adjusted to fit the varying circumstances in the case. In general, doses of cortisone between 100 and 200 mg. per day have been found effective in preventing adrenocortical insufficiency in the event of most stresses and have been employed during the relatively brief course of severe acute infections without apparent aggravation of the infections. Even larger doses may be used for short periods, if needed to prevent adrenocortical insufficiency. Appropriate specific treatment for the infection, such as antibiotic therapy, chemotherapy, or surgical drainage, should be instituted. As these measures bring the infection under control, the dose of cortisone should be reduced gradually. Current information does not suggest that any presently available adequate substitute for cortisone, for example, hydrocortisone or large doses of adrenocortical extract, would be appreciably superior to cortisone in the management of problems of this sort.

RHEUMATOID SPONDYLITIS

To the Editor:—*A patient with spondylitis anklopoietica (Marie-Strümpell disease) also has sinusitis, and hemolytic streptococci and staphylococci have been cultured from the sinus lesions. Would a trial of autogenous vaccine be in order? Please discuss the etiology of this disease.*

M.D., Florida.

Answer.—No unanimity of opinion prevails about the use of vaccines in the treatment of articular diseases. Most rheumatologists no longer use either autogenous or stock vaccines, because the results have not been encouraging on critical evaluation; however, some physicians do still use vaccine therapy, and a trial of either an autogenous or stock vaccine would not be contraindicated in the case described. Before treatment with a vaccine is considered, specific treatment of the infection of the sinuses, including use of appropriate antibiotics and establishment of adequate drainage from the sinuses, is indicated.

Rheumatoid spondylitis (a term proposed by the American Rheumatism Association in preference to "Marie-Strümpell's arthritis") is an inflammatory, probably nonspecific disease affecting principally the sacroiliac joints and diarthrodial joints ("facets") of the spinal column. As in other rheumatoid diseases, the inflammatory process also may affect the periarticular, fibrous, and other mesenchymal tissues of the body. The etiology of rheumatoid spondylitis remains unknown. Comprehensive studies have indicated that many of the previously suggested concepts of its cause are not tenable at present. An ill-considered notion that rheumatoid spondylitis is due to hyperparathyroidism was apparently based on the prominence of calcification of vertebral ligaments with an associated osteoporosis of the vertebral bodies. This theory was at its zenith about 20 years ago but is now discarded. Another idea, also discarded, was that rheumatoid spondylitis is due to gonorrheal infection. This was probably proposed because of the tendency for both diseases to occur in young adult males. It also has been thought that rheumatoid spondylitis might be the result of focal infection, tuberculosis, or other infection of the sacroiliac joints or congenital anomalies of the lumbosacral segments of the spinal column, but these remain unproved and unlikely explanations.

Although injuries of varying extent to the back are apparently a common experience of both men and women, trauma cannot usually be related to the onset of rheumatoid spondylitis. Studies by Shands and Oates at Duke University and by Golding in England as well as by others interested in rheumatoid spondylitis have supported this observation. The onset of rheumatoid spondylitis could be related to trauma in only 7% of more than 1,000 cases studied at the Mayo Clinic by Polley. Most European rheumatologists are of the opinion that rheumatoid spondylitis is unrelated to rheumatoid arthritis of peripheral joints, but the consensus among most American rheumatologists is that these diseases are closely related to each other. Twenty-five to 50% of patients with rheumatoid spondylitis have associated arthritis of peripheral joints that is indistinguishable both clinically and pathologically from rheumatoid arthritis of peripheral joints seen in patients without rheumatoid spondylitis. Although the cause of rheumatoid arthritis also remains to be established, the prevalent opinion about the cause of rheumatoid spondylitis is summarized in the statement that "presumably, but not certainly, the cause of rheumatoid spondylitis is the same as that of peripheral rheumatoid arthritis" (Hench, P. S.; Slocumb, C. H., and Polley, H. F.: *M. Clin. North America* 31:879, 1947).

COMPETITIVE ATHLETICS FOR HIGH SCHOOL STUDENTS

To the Editor:—*Do you have information regarding the danger of the occurrence of cardiac hypertrophy, with permanent heart damage, owing to the strenuous physical exertion of competitive swimming at junior high school and high school levels?* *Stephen S. Ellis, M.D., Coffeyville, Kan.*

Answer.—Few controlled studies are available on the effect of strenuous physical exertion on the heart of normal youths of junior high school and high school ages. There is even less dependable information on the effects of swimming. No report of death from competitive swimming was found in a review of the literature from 1945 to the present. Best and Taylor (The Physiological Basis of Medical Practice, ed. 4, Baltimore, Williams & Wilkins Company, 1945) state, "It is now agreed that cardiac enlargements are the result of pre-existing disease and the normal heart cannot be dilated beyond its physiological limit, nor will a bout of strenuous exercise 'strain' the healthy heart muscle or cause it to fail. . . ." In a 1945 report of the Committee on the Cardiovascular Study of Athletes, Wolffe and Mueller state, "Unquestionably it is injudicious to allow on a school team students with a limited cardiac reserve shown, for instance, by a history of rheumatic fever and evidence of damage to some important part of the heart. . . ." (The Heart of the Athlete, Report of the Committee on the Cardiovascular Study of Athletes, Philadelphia, 1945). Smith (*Proc. Staff Meet., Mayo Clin.* **10**:122, 1935) states, "The point I want to emphasize is that strenuous physical exercise and hard manual labor do not cause, or predispose to, heart disease; that such activities do not cause abnormal cardiac hypertrophy and that the athletes do not develop early disability and die because of exercise they indulged in while in school." Johnson, Brouha, and Darling stated in *Revue canadienne de biologie*, June, 1942, "We have had many years' experience in working normal healthy young men to exhaustion on the treadmill, rowing machine or bicycle-ergometer and have never observed any undesirable sequelae." In the Report of the Joint Committee on Athletic Competition for Children of Elementary and Junior High School Age, published by the American Association for Health, Physical Education and Recreation, in 1952 (Washington, D. C.), a questionnaire study of physicians' reactions to athletics for children is tabulated in terms of a number of health factors. Of the 220 physicians expressing an opinion, only two (0.9%) considered competitive swimming not advisable for children 12 to 15 years of age. This suggests that swimming is not considered a hazardous competitive sport by the physicians queried. It would appear from the evidence available that normal children in the 7th to 12th grades can safely compete in swimming, provided they are safeguarded by medical examinations that give reasonable assurance of no abnormal heart condition and they are supervised by a competent coaching staff.

HOT FLASHES LONG AFTER THE MENOPAUSE

To the Editor:—*Hot flashes sometimes are complained of 5, 10, or even 15 years after the cessation of menstruation. What is the explanation, and is there any special treatment beyond the sparing use of estrogens?*

D. A. MacGregor, M.D., Wheeling, W. Va.

Answer.—The vasomotor symptoms of the menopause are due to the inevitable endocrine readjustment following the cessation of ovarian function. The query does not state whether this patient has been given estrogens, but there is no doubt that too persistent therapy of this sort, putting into the woman's circulation what nature is trying to get rid of, defers the inevitable readjustment. Estrogen therapy, if it has been used, should be discontinued, and the chief reliance should be on psychotherapy and simple sedatives.

PRIMARY TUBERCULOSIS

To the Editor:—*1. Is primary hilar tuberculosis considered infectious? Should a child with primary tuberculosis be admitted to a general pediatric ward? 2. What is the point in examining gastric juice in primary tuberculosis? If an acid-fast bacillus is found or if the injected guinea pig dies of tuberculosis, is this proof that the patient is infectious to others? 3. Two asymptomatic children are Mantoux positive. One shows no roentgenographic changes and the other a large mass of hilar nodes. Is there any difference in their infectivity to others? Is there any difference in their prognosis? 4. A child, aged 2 years, lives in an orphanage. His father has open tuberculosis. The child is symptomless and has no roentgenographic changes but had a Mantoux conversion three months ago. Should he stay at the orphanage or be admitted to a hospital? Another child, aged 6 years, had a Mantoux conversion nine months ago and has a large hilar flare without symptoms. Should he stay at the orphanage? 5. Is there good evidence that rest is beneficial in the treatment of primary tuberculosis, even if large hilar nodes are present? Provided children are not fatigued, is it not better to treat them as outpatients rather than admit them to a hospital, especially since they get no specific chemotherapy? 6. Frequently one hears that children with primary tuberculosis should have routine lumbar punctures to detect cases of meningitis early. May not this procedure cause meningitis by releasing the pressure on a tiny unsuspected subcortical tubercle so that the tension inside it causes it to rupture into the cerebrospinal fluid?*

S. Levin, M.D., Boston.

Answer.—As far as possible, the answers will be given categorically as the questions have been asked: 1. Primary hilar tuberculosis is not necessarily considered infectious. Open pulmonary lesions must also be present before bacilli can escape into the bronchial secretions. It is true that Ranke claimed that lymph nodes along the main bronchi may discharge bacilli into the bronchi by a "leakage" process, which he called "hilus catarrh." Leakage from the large nodes at the hilum would, however, be rare, and any such "leakage" would contain so few bacilli that they would probably never get past the lips to infect others, although they may be found in the gastric washings. Children with primary tuberculosis may be admitted to pediatric wards, but quarantine techniques should be carried out in handling them, because it cannot always be foretold when the patient will become sputum positive and infect his highly susceptible associates. 2. There is much to be gained in gastric lavage in primary tuberculosis. It is true that many times few bacilli are present, and they may be found only on culture and guinea pig inoculation, but it is a worth while procedure. Before the advent of antibiotic therapy and chemotherapy, Paulson found that in the average primary tuberculous infection tests remained positive for about three years. Now the time is much shorter, but the presence of tubercle bacilli in the gastric secretions is evidence of continuing activity of the disease, although it may appear healed. The finding of bacilli in gastric secretions does not always mean the child will infect others. Unless bacilli are found in the sputum or throat swabs, the possibility of infecting others is extremely unlikely. 3. While there are exceptions to all rules, there would generally be expected to be a decided difference in the infectivity of the two children. The one without roentgenographic changes would most likely have negative sputum and gastric secretions, while the other, during the active phase of the disease, would have positive gastric secretion and may have positive sputum or throat swabs and thus would be infectious. It may happen rarely that an open lesion will exist behind the heart or in the "invisible" areas of roentgenograms of the lungs, in which event the secretions will be positive. 4. The first child may remain in the orphanage so long as he does not show signs of clinical disease, roentgenographic evidence of clinical disease, and, especially, positive mouth or gastric secretions. He should be examined monthly, for several months, until presence of the infection is proved or disproved, and action should be governed accordingly. The second child should be removed if his mouth secretions are positive and should be given drug therapy, which should render his secretions negative and safe in a few months, after which he may be returned to the orphanage. 5. There is no good evidence that rest is beneficial in primary tuberculosis. Rest as applied to active adult disease is not necessary. During any active or febrile phase of primary diseases, as much rest is recommended as can be had, but when the patient becomes symptom-free rest has been found unnecessary. This latter fact was established by Myers, in Minneapolis, when he closed the Lymanhurst Institution. The child should not, however, become fatigued, and good hygienic measures should be followed. It is better to treat such a child as an outpatient. 6. Lumbar puncture is liable to do more harm than good, as the questioner suggests. Besides, the chances of finding positive cases so early in meningitis are so remote it would be an utter waste of time.

CARE OF THE HAIR

To the Editor:—*How often should one's hair be shampooed? Of what value are detergents? I hear so much about different brands, yet I am hopelessly mired in ignorance. Is there any harm in putting water on the hair when grooming it?*

M.D., California.

Answer.—Washing the hair per se will not result in hair damage but if strong cleansing agents are consistently used, the hair and scalp may become excessively dry. Years ago, cleansing agents were often more alkaline than they are today, and inferior shampooing results were not rare. There are few persons who find it necessary to wash the hair more than twice a week. The average person in a city may require shampoos once a week. Wetting the hair for grooming purposes is not harmful. The type of detergent used in a particular shampoo is a trade secret, unless the manufacturer wishes to disclose it. Some shampoos contain both a soap and a synthetic detergent product. The most satisfactory criterion for determining shampoo action is to experiment with several reputable brands until one is found that suits the individual needs. This experimentation will not result in serious hair damage. The most that will occur is temporary excessive dryness and such cosmetic disadvantages as inferior manageability and hair gloss. In general, synthetic detergents are efficient cleansers, and some would not be suitable for any but extremely oily hair; however, by the addition of certain chemicals, cleansing ability can be decreased, and a product can be produced that is satisfactory for dry and average hair. When excessive dryness of the hair persists despite a change in shampoos, other causes should be investigated. Over-processing during permanent waving is a common cause of brittleness and dryness of hair. The possibility of organic causes also should be ruled out.

NEUROFIBROMATOSIS

To the Editor.—*Today I saw a 29-year-old woman with what undoubtedly is neurofibromatosis. I biopsied a lesion several years ago. Her affliction started about 12 years ago, and she is covered with hundreds of these lesions. Her face is pitiful. It has been my impression that surgical removal of the lesion, which actually causes pain, is about the only treatment recommended. Would there be any merit in considering the use of an estrogenic hormone? Since corticotropin (ACTH) or cortisone has been tried in every other known affliction, have these preparations been used in this disease?*

M.D., Alabama.

Answer.—Neurofibromatosis (Recklinghausen's disease) starts before the age of 17 or 18 and usually makes its first appearance in early childhood, although it may reach its peak when the patient is in his twenties. Surgical removal of the painful lesions is the most satisfactory method of treatment. There is no reason to believe that corticotropin or cortisone would be of any value. Other hormones used in the past in the treatment of this disease have had no effect.

REPEATED ATTACKS OF ERYTHEMA NODOSUM

To the Editor:—*A married man, aged 38, has a history of vivax malaria, colitis of many years duration, and repeated attacks of erythema nodosum. At the age of 34, while at rest, he felt a hypesthesia involving the right face and arm, which subsided after an hour; at the time he had erythema nodosum. In 1952, after a healthy four years, he had a severe supraorbital headache, an unnatural feeling of extreme fatigue, and difficulty in walking properly and in writing. This gradually subsided in a day or two, with complete recovery. In December of the same year, again following strenuous work and sleeplessness, he had the same headache with extreme fatigue, but this time he noted a short-lasting diplopia involving the right rectus lateralis. Results of physical examination during and after the attack, blood cell counts, and serologic tests for syphilis have been negative. Roentgenograms of the skull are not contributory. I would appreciate your opinion on diagnosis and management in this case.* *M.D., Lebanon.*

Answer.—Erythema nodosum is a symptom complex, not a specific disease entity. It may be a manifestation of any of the following conditions: ingestion of such drugs as iodides, bromides, or sulfonamides, endocarditis, arthritis, recurrent septic sore throats, rheumatic fever, tuberculosis, leprosy, syphilis, malaria, trypanosomiasis, venereal lymphogranuloma, chancroid, acute exanthemas, Neisseria infections, typhus fever, Boeck's sarcoid, fungus infections, and, frequently, infection with intestinal parasites. The history of the patient in question, while lacking in many specific details, gives some highly suggestive points of approach, namely, youth, a history of vivax malaria, stubborn colitis, and repeated attacks of erythema nodosum, some early symptoms of a vascular or nervous nature, fleeting hypesthesia, impaired locomotion and ability to write, and short-lasting diplopia. All of these episodes followed extreme physical fatigue and sleeplessness. A chronic cerebral malarial infection would produce any of the above symptoms, individually or grouped. In this type, the blood is usually negative for malarial parasites. A spinal fluid examination is indicated, and would show increased pressure, up to 400 lymphocytes per cubic centimeter, abnormally high albumin and globulin levels, and also, sometimes, pigments from malarial parasites. Meningism may be the cause of diplopia. The colitis could be a manifestation of an abdominal type of malaria. Undulant fever should be eliminated by means of a Brucellergen (a suspensoid of protein nucleate derived from Brucella organisms) test. Roentgenographic examination for internal Boeck's sarcoid and a more complete history, including information on episodes of fever, travels, and diseases endemic in the environment of this person, would help. No opinion about management has any value until a definite diagnosis has been established.

OCCUPATIONAL THERAPY IN EARLY RHEUMATOID ARTHRITIS

To the Editor:—*In an early stage of rheumatoid arthritis when the joints of fingers, hands, and wrists are becoming swollen, painful, and stiff, is playing the piano a helpful exercise? Can it be recommended as a pleasant substitute for the usual exercises, which are exercises and nothing more?* *M.D., Texas.*

Answer.—Carefully planned occupational therapy may not be entirely satisfactory as a substitute for exercises in rheumatoid arthritis, but occupational therapy has the great advantage of minimizing the monotony and boredom that may accompany performance of calisthenic-like exercises. Physicians who plan occupational therapy for patients with rheumatoid arthritis should keep in mind certain objectives: the activity should consist of work that is interesting, the work chosen should entail articular and muscular movements calculated to maintain and improve action of affected joints, and the work involved should not cause excessive fatigue. Occupational therapy that is properly planned may serve an important function in ridding patients of feelings of helplessness and dependency. Playing the piano may serve well as occupational therapy for rheumatoid arthritis involving fingers, hands, and wrists. The duration of practice should be supervised and should depend upon the character of the disease. If the process is active and swelling is pronounced, 10 or 15 minutes should suffice. If the disease is relatively inactive, the amount of time devoted to practice can be prolonged.

INTRAUTERINE FETAL DEATH

To the Editor:—*A 22-year-old woman is married to a third cousin. Her mother and father-in-law are first cousins. Her blood is type B, Rh-negative, and her husband's blood is type AB Rh-negative. About one and one-half years ago, she gave birth to a 3¾ lb. (1,701 gm.) boy one week after expected confinement. The infant lived only a few hours. The placenta was said to be normal. Autopsy revealed no apparent cause of death. In December, 1952, after a second uneventful pregnancy, she noted a cessation of fetal movements at the onset of labor. A dead, macerated female fetus, weighing less than 4 lb. (1,814 gm.) was delivered about eight hours later. Three infarcts were noted in the placenta. Autopsy again revealed no apparent cause of death. The patient's blood pressure ranged between 120/80 and 142/90 throughout the pregnancy. At no time was albuminuria, pyuria, or glycosuria noted. The results of the Mazzini test were negative. The patient's weight gain was normal. What would cause these fetal deaths and the infarcts noted in the second pregnancy? Should this woman attempt to conceive again, and, if so, should a cesarean section be done about two weeks before expected term in the hope of getting a viable child?* *M.D., New York.*

Answer.—Little information is available concerning the factors that predispose to intrauterine fetal death, with or without associated infarction of the placenta, in women who do not have chronic hypertensive vascular disease. A complete study of the patient, which should include the usual kidney function tests, will rule out the latter condition. It may be well to check thyroid function by means of a blood protein-iodine determination as well as a basal metabolism test. The distant relationship of the parents is of no importance in causing the fetal deaths. The mother should be encouraged to conceive again. She should be encouraged to take a high protein diet but to restrict her weight gain to no more than 8 to 10 kg. If she has hypometabolism, she should receive thyroid. It is preferable to await a natural delivery unless toxemia should begin to develop. The small size of the fetuses may be an indication of poor nutrition because of an inadequate uteroplacental blood supply. In chronic hypertensive vascular disease the lesion is in the placental site, which leads to changes in the placenta and a decreased circulation to the fetus.

MENTAL DEPRESSION DURING MENSTRUATION

To the Editor:—*Please discuss the management of a 37-year-old woman who is greatly depressed one to two days prior to, during, and seven days following menstruation. There is no appreciable change in the menstrual cycle, and no organic disease can be found.*

George E. Quinn, M.D., Farmington, N. H.

Answer.—This patient obviously needs sympathetic psychiatric study to find the cause of her depression. There is a tendency to relate these things to the menstrual cycle when the real trouble is psychiatric. Naturally, just before the menstrual period the hormone blood levels rapidly drop, and a certain degree of letdown is understandable, but it happens in all women who menstruate and does not cause undue depression. This patient should not be treated with hormones, because, although such therapy may temporarily give slight improvement, it would not solve her basic problem and would eventually fail to give relief.

MULTIPLE POSITIVE REACTIONS TO ALLERGIC SKIN TESTS

To the Editor:—*A patient, aged 43, had no allergic manifestations until four months ago, when he received three daily injections of penicillin. Later he began to take a standard multivitamin and multimineral tablet. The list of positive reactions found by a competent allergist is enclosed. I have never seen a report with so many positive results. I am suspicious of the penicillin or the vitamin and mineral tablets. With all these allergies, the patient is kept well under control by the use of the antihistamine preparation methapyrilene hydrochloride (Histadyl). How should I proceed in this case?* M.D., *New Jersey.*

Answer.—If the urticaria began several days after penicillin administration it is probably an example of the common form of the "serum sickness" type of reaction to this antibiotic. This type of urticaria or angioneurotic edema resulting from a penicillin reaction may last for hours or months or even longer than a year. Ultimately the syndrome disappears. The diagnosis is made from the clinical history and the exclusion of other possible causes of urticaria. The result of a skin test with penicillin is almost always negative in this type of allergy. Furthermore, in the majority of all types of urticaria, the skin tests are negative. Certainly the majority of positive skin tests as reported in the attached list have no bearing on the patient's complaints. There are several possible explanations for the large number of reactions. One of the most likely is the patient's skin irritability, which often occurs in urticaria. The allergy tests reported to the inquirer constitute a classical example of the many types of misapplication and misinterpretation of the skin test in allergy. Provided the timing of the onset is compatible with a history of penicillin reaction, the best advice to the patient is to disregard the syndrome, except for obtaining symptomatic relief.

FUNGUS INFECTION OF NAILS

To the Editor:—*A friend has a fungus infection of all the nails on one hand. He has consulted dermatologists, none of whom had any satisfactory treatment. The nail bed is being replaced by irregular, white, raised, dry areas, which become piled up unless they are scraped down. Has plastic surgery been tried? If so, please describe this method.* M.D., *Arkansas.*

Answer.—It would be desirable to isolate and identify the causative organism in this case. Such identification might give a better idea of the prognosis, because new fungicides and new keratolytic vehicles are constantly being introduced for which claims for specificity are made. All such drugs should be tried before resorting to surgical avulsion, because the results from surgery are too often unsatisfactory. If the nails are removed by surgery, the nail bed and matrix must be treated thoroughly and continuously with fungicides.

SOFTENED WATER

To the Editor:—*Is there any danger in using water softened by ordinary commercial softeners for drinking or cooking purposes? Is there any benefit? Does such water have any effect on nutritive value of cooked foods?*

Arthur W. Anderson, M.D., Lexington, Neb.

Answer.—Any proper water softening is without significant physiological import. The advantages of softened water chiefly are economic, relating to such matters as laundering, hair washing, conservation of detergents, cleanliness of plumbing fixtures, and taste and appearance of food. Some hard waters modify the appearance of tea and the flavor of coffee. It is true that well-softened waters employed in cooking extract a higher percentage of the minerals of vegetables and possibly of the vitamins, but this is not characteristic of ordinary chemically softened waters. In general, it may not be claimed that softened waters introduce physiological detriment, and the advantages far outweigh any usual objections.

CHOLINE AND METHYLENE BLUE

To the Editor:—*Is the use of choline 5 grains (0.32 gm.), in 1 oz. (30 cc.) of an alkaline eye wash solution contraindicated? Is the use of methylene blue, in a proportion of 1/150 grain (0.4 mg.) per 8 oz. (250 cc.) of alkaline eye wash solution contraindicated when choline is included in the solution? Does choline have the power of inducing penetration in the deep structures of the eye coats if methylene blue is included in the proportions mentioned, and is there any possibility of permanent stain in these structures? Will methylene blue in such proportions have antiseptic or germicidal properties of value?*

Vincent Boccella, M.D., Glenside, Pa.

Answer.—Choline, a viscid, strongly alkaline liquid, is commercially available, but the salts are usually used, the most popular forms being choline chloride and the more stable choline dihydrogen citrate. The bicarbonate and borate salts are also obtainable. In 1% solution, choline bicarbonate is slightly alkaline and choline dihydrogen tartrate slightly acid. Either could be used in the eye wash, the choice depending on the final pH desired. Methylene blue is easily salted out of solution and, hence, is considered unsuitable for coloring solutions of salts. The suggestion that choline can induce penetration in the deep structures of the eye coats, originally proposed by Dmitry, has not received experimental support. In any case, no permanent stain can result from the use of methylene blue, as the compound is rapidly reduced in the tissues to the colorless form. Although methylene blue is antiseptic for pure cultures in 1:150,000 dilution, the proposed eye wash would have three times this dilution. Methylene blue is a slow-acting, weak germicide, and, in the colorless form, it is inert.

GIANT CELL TUMOR OF FEMUR

To the Editor:—*Please advise me concerning a benign giant cell tumor of the distal end of the femur. What are the advantages of amputation and the possibility of eventual metastasis if amputation is done, even though the tumor is considered benign at present?*

Louise M. Puglise, M.D., Brooklyn.

Answer.—The treatment of benign giant cell tumor of the distal end of the femur may be carried out in one of two ways. The area may be exposed to doses of roentgen rays given through several portals with protection of the bone by crutches or splint to prevent pathological fracture, or the lesion may be removed by thorough curettage and the use of an escharotic, such as zinc chloride solution, followed by packing with bone chips and primary closure of the wound. In the surgical treatment of giant cell tumor, it is essential that the complete removal be done at the first operation and that primary wound healing be obtained. Amputation should be confined to cases in which there has been evidence of a transformation to malignant giant cell tumor or cases in which wound infection and fungation precludes satisfactory management by any other method. Such a surgical complication nowadays is seldom encountered. The possibility of metastasis as a late complication after amputation in a tumor that is histologically benign is exceedingly remote, and the life expectation of a person who has had an amputation while the lesion is histologically benign should not be adversely affected.

TESTS FOR LIVER DAMAGE

To the Editor:—*How long must complete extrahepatic obstruction of a normal liver be present to produce enough hepatocellular changes to be manifested by abnormal cephalin-cholesterol flocculation and thymol turbidity?* M.D., *Tennessee.*

Answer.—Abnormal cephalin-cholesterol flocculation and abnormal results in other tests for hepatocellular damage usually become apparent within a few weeks after complete extrahepatic obstruction of the biliary tract. Therefore, results of these tests will usually be normal during the first week or two. This is of value in differential diagnosis between an obstruction and acute hepatitis.

USE OF ANTICHOLINGERIC DRUGS IN PEPTIC ULCER

To the Editor:—*A recent news item described a substance designated BA-5473, which was reportedly effective in the management of peptic ulcers. My patient has a large ulcer and is interested in trying this drug. Kindly inform me whether the news item was correct and where the drug is available.* *Millard Pasthuma, M.D., Cadillac, Mich.*

Answer.—Shortly after the demonstration by Dragstedt and his associates that gastric vagotomy had a beneficial effect on the healing of duodenal ulcers, attempts were made to produce medical vagotomy by means of drugs that would depress or paralyze the vagus nerve endings in the stomach. Several such anticholingeric drugs are now available, and they exert a depressant action on the nervous mechanism of gastric secretion without producing side-effects that are prohibitive. Some of the newer drugs depress gastric secretion even after the vagus nerves to the stomach have been divided and so may be said to have a true antisecretory action. At present, until more extensive clinical trial has been made, it is wise to use these preparations as adjuvants to the standard type of medical management employing alkalies and frequent feeding. BA-5473, or Antrenyl (oxyphenonium bromide), manufactured by Ciba Pharmaceutical Products, Inc., of Summit, N. J., is one of these preparations.

MULTIPLE OSTEOMAS OF SKULL

To the Editor:—*I should like information about treatment of multiple osteomas of the skull in a 25-year-old woman. They have been present for at least 10 years, are slowly progressing in size, and so far have produced no neurological changes. The largest one is in the center of the forehead and causes a noticeable deformity, which is becoming a psychological problem. The roentgenographic appearance shows dense bony tumors that extend inside the cranial vault. Would it be possible to improve the patient's appearance by making an incision from above the hairline and trimming off the osteoma flush with the normal plane of the forehead?* *M.D., Washington.*

Answer.—From the description, this is an unusual case. There is not sufficient detailed information given to make a diagnosis. Multiple osteomas are seldom seen. If the tumors in this case extend intracranially they would not appear to be ordinary osteomas. They may possibly be meningiomas. In making a diagnosis in this case, roentgenograms should be of considerable assistance and ought to be interpreted by a competent roentgenologist. If the tumor extends intracranially, it probably should be removed along with the inner table of the skull with a tantellum plate used for replacement. If the tumor extends into the region of the longitudinal sinus, this would have to be taken into consideration.

GLASS IN INTESTINAL TRACT

To the Editor:—*A patient swallowed some glass that was in the bottom of a soft drink bottle in August, 1952. 1. How long can the glass remain in the intestinal tract without penetrating the wall and without being expelled in the feces? 2. Can the glass penetrate the wall of the intestinal tract without producing noticeable peritonitis? 3. If a small portion of the glass penetrates the wall of the intestinal tract, what is the possibility of it subsequently traveling to a remote vital organ and causing damage there?*

M.D., Georgia.

Answer.—1. Glass, unless it becomes attached to the bowel wall, passes normally through the digestive tract surrounded by feces. 2. Glass penetrating through the intestinal wall produces local or generalized peritonitis. 3. A spicule of glass may travel like a needle and penetrate a distant organ in the abdomen. Some pieces of glass are radio-opaque and may be seen roentgenographically.

POLYPS IN THE DUODENUM

To the Editor:—*A roentgenologist has observed a polyp in the first portion of the duodenum of a woman who has no gastrointestinal symptoms. Do such polyps ever become malignant? What is the consensus regarding their removal?*

L. R. Evans, M.D., Laramie, Wyo.

Answer.—Polyps in the first portion of the duodenum are relatively rare. If they are sessile polyps and are on a long pedicle, they may cause an obstruction by migrating in through the pyloric canal. Their relation to malignancy has been questioned by many workers; however, they should be removed, because of the possibility of the occurrence of obstructive manifestations and interference with the normal motility of the duodenum and because they have a great tendency to become ulcerated. Profuse bleeding may ensue. Air bubbles in the duodenal bulb often simulate polyps in roentgenograms. Present day fluoroscopic compression techniques disperse this air so that such errors in diagnosis now occur less frequently.

TUBERCULOSIS IN YOUNG CHILD

To the Editor:—*In October, 1950, a 17-month-old child was found to have pulmonary miliary tuberculosis. He was given thiazolsulfone (Promizole) and 1 gm. of streptomycin daily for five months. Streptomycin therapy was discontinued, and thiazolsulfone alone has been given up to the present. The chest roentgenogram has remained stable since June, 1951; the sedimentation rate, the white blood cell count, and the differential count have been normal since January, 1952. The child has had no fever during this period and is eating well and gaining weight. Can you advise from these meager details whether thiazolsulfone therapy should be discontinued? Should withdrawal be abrupt or gradual?*

B. F. Grotts, M.D., Michigan City, Ind.

Answer.—The principal danger facing the patient with arrested miliary tuberculosis is tuberculous meningitis. When meningitis occurs, it usually develops within the first year following arrest of the disease by the use of specific drugs. It appears probable that, since two years have elapsed in the case described, adequate treatment has been given.

SMALLPOX VACCINATION OF INFANT

To the Editor:—*A 3-month-old healthy male infant has had three smallpox vaccinations with vaccine of a standard make and has never shown any reaction. The mother was vaccinated when she was a baby; she is now 23 years old. I have never seen such a case. When should smallpox vaccination be attempted again?*

Eugene M. Kistler, M.D., Allentown, Pa.

Answer.—Inherited immunity to smallpox often persists in an infant for six months or longer, provided the mother has had a successful vaccination. This probably is the reason for the failure to obtain a successful vaccination in the first three attempts. An attempt should be made after three more months have elapsed.

ICHTHYOSIS

To the Editor:—*A girl, 11 years old, has ichthyosis and, in addition, teeth that are poorly formed, yellow, and pitted. She has a low basal metabolism and has been taking 1 grain (0.06 gm.) of thyroid three times a day along with Maltine with cod liver oil and creosote. She eats well and drinks adequate amounts of milk. Have you any suggestions?*

Watson B. Morris, M.D., Springfield, N. J.

Answer.—Ichthyosis is a congenital abnormality. A specific cause has not been established. Mild cases sometimes clear up spontaneously at puberty, and in some cases the administration of vitamin A seems to be effective. A soft ointment containing 2% salicylic acid is usually helpful. The changes in the teeth may be independent of the cutaneous disorder.

AIR EMBOLISM FOLLOWING ARTIFICIAL PNEUMOTHORAX

To the Editor:—*In* The Journal, *May 16, 1953, page 293, is a discussion of air embolism following artificial pneumothorax, in which it is said that nothing can be done for this type of air embolism except to hope that it does not reach a vital center. Cases are on record in which the immediate change of the patient's position to the left lateral recumbent or the Trendelenburg position, which permits trapping of the air bubble above the blood in the right ventricle, has enabled the observer to aspirate air directly from the right ventricle. Such a procedure was reported by Stallworth, Martin, and Postlethwait in* The Journal (**143:***1250 [Aug. 5] 1950).*

William B. Bean, M.D.
State University of Iowa, Iowa City.

To the Editor:—*The answer to the query on air embolism following artificial pneumothorax in* The Journal *May 16, page 293, is misleading, probably because the query is misunderstood. The query relates an incident of air embolism to the right ventricle following refill of an extrapleural pneumothorax. In the answer air embolism occurring in intrapleural pneumothorax is discussed. Air embolism from extrapleural pneumothorax usually does not result from a bronchovenous fistula, as occurs in the case of intrapleural pneumothorax. It is probable that a systemic vein was lacerated in this case so that air already present in the extrapleural pneumothorax space was able to enter the venous return to the heart and obstruct blood flow to the lungs from the right ventricle. Death was due, therefore, to forward cardiac failure and peripheral ischemia rather than to air embolism to the coronary arteries or centers of respiration in the brain. The latter could occur only if there was a congenital opening between the two sides of the heart so that air entering the right chambers could cross into the left chambers and then proceed to the peripheral circulation. The treatment the California doctor used was correct; he turned the patient on the left side hoping that an air trap in the outflow tract of the right ventricle would be relieved, since in the left decubitus position the outflow tract is inferior to the rest of the right ventricle and the air would rise out of the outflow tract. The principle involved has been studied by Dr. Thomas Durant and his associates* (Am. Heart J. **33:***269, 1947;* Pennsylvania M. J. **56:***279, 1953). It is possible to prevent death in such cases, if the amount of air entering the right ventricle is not excessive.*

I take exception to the statement, "The accident should never happen if the technique is good and the cases are properly selected." Such accidents may happen regardless of how careful the operator is, because it is not possible for him to have his eye at the point of the needle so that he can see where it is going and avoid lacerating blood vessels.

William Weiss, M.D.
Philadelphia General Hospital, Philadelphia 4.

To the Editor:—*In his reply to the query on air embolism in* The Journal *for May 16, 1953, page 293, I think your authority has confused arterial and venous air embolism. The inquirer says that air was introduced into an extrapleural pneumothorax and at autopsy the right ventricle was full of air. This phenomenon was therefore due to air entering a systemic vein and reaching the right side of the heart. When the needle forms a communication between a bronchus and a pulmonary vein, air reaches the left ventricle and causes symptoms by entering the coronary arteries (death) or cerebral arteries (such as hemiplegia or visual defects). It is possible for air from the right side of the heart to reach the brain if there is a patent interauricular septum or if it passes up the internal jugular vein or traverses the paravertebral plexus of veins. Diagrams showing the routes taken by air emboli can be found in "Emergencies in Medical Practice," edited by C. Allan Birch (ed. 3, E. & S. Livingstone, Edinburgh, 1952).*

It may be added that to turn the patient on the left side is good treatment in all cases. When air is in the right ventricle, it is less likely to obstruct the outflow tract if the patient is lying on the left side. When air is in the left ventricle, it is less likely to enter a coronary artery when the patient is in this position because the part of the aorta that is uppermost does not have a coronary orifice.

C. Allan Birch, M.D.
2, Slades Hill, Enfield, England.

TREPONEMAL IMMOBILIZATION TEST

To the Editor:—*To the information on the treponemal immobilization test in* The Journal *March 14, 1953, I would like to add that the Division of Venereal Disease Control, Province of Ontario, commenced use of the Treponema pallidum immobilization test toward the end of 1951, as a service to physicians in this province. The use of the test originally was restricted largely to cases in which physicians had difficulty in interpreting the results of the standard serologic tests. Priority was given to specimens from prenatal, premarital, and preemployment subjects. The physicians of the province cooperated to such an extent that in July, 1952, the department of health of Ontario was in a position to extend this service to the remaining nine provinces of Canada as well as to the armed forces. The average number of specimens received each week rarely exceeds 100, which is the maximum capacity of the TPI unit in the central public health laboratories in Toronto. The director of the Division of Venereal Disease Control feels that the test is one more aid in resolving the difficult problem of differential diagnosis in latent syphilis. For physical and other reasons, the services of the Treponema pallidum immobilization test are provided only for the physicians of Canada, through the divisions of venereal disease control for each province.*

George W. Miller, M.D.
Assistant Director
Division of Venereal Disease Control
Department of Health
Province of Ontario, Toronto, Canada.

CONGENITAL HYDROCELE

To the Editor:—*In the Query and Minor Note on "Congenital Hydrocele" in* The Journal *Feb. 21, 1953 (page 694), it is stated, "simply closing the inguinal area off alone and leaving the distal end in situ would most likely be followed by a recurrence of hydrocele fluid accumulation." For some unknown reason, this is not true. I have treated many patients with congenital hydrocele by transecting the sac along the cord and closing the inguinal area in one way or another to prevent congenital hernia. Occasionally, I have split the distal end of the hydrocele sac lengthwise for a short distance down the cord; however, I have never removed or everted it. To my knowledge, the hydrocele has not recurred, and some of my patients have been followed closely for more than 10 years. Undoubtedly, the incidence of traumatic injury to the vas deferens is related directly to the extent of surgery performed within the scrotum. In young children, particularly, the vas deferens is very delicate in the dependent portion of the scrotum, and the chance of its occlusion by traumatic injury is probably greater than the chance of a recurrence of the hydrocele fluid if the distal end of the sac is left in situ.*

Miles Griffin, M.D.
6633 Telegraph Ave.
Oakland 9, Calif.

TUBAL LIGATION IN RH-NEGATIVE MOTHER

To the Editor:—*The answer to the query in* The Journal *May 16, 1953 (page 295), about tubal ligation in the Rh-negative mother who has had an erythroblastotic infant should be amplified. It is important that the father's Rh genotype be determined, because, if he is* Rh_0 *heterozygous, half the progeny will be Rh negative. There are more* Rh_0 *heterozygotes than homozygotes. The statement that tubal ligation is an entirely final procedure is, of course, true, but the family may be offered a ray of hope in the determination of the father's Rh genotype.*

Thomas E. Cone Jr., M.D.
108 N. Stanworth Dr.
Princeton, N. J.

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 152, NO. 16 CHICAGO, ILLINOIS AUGUST 15, 1953

COPYRIGHT, 1953, BY AMERICAN MEDICAL ASSOCIATION

SPLANCHNICECTOMY FOR ESSENTIAL HYPERTENSION

RESULTS IN 1,266 CASES

Reginald H. Smithwick, M.D.

and

Jesse E. Thompson, M.D., Boston

Hypertensive cardiovascular disease remains one of the foremost problems facing medicine today. It has been estimated that one-fourth of the adult population of this country has high blood pressure[1] and that the complications of this condition account for more deaths annually than does cancer. Hypertension is of particular importance because it is responsible for many deaths and much premature disability in young and middle-aged persons. It is highly desirable, therefore, to lower the mortality for such a disease.

Many forms of therapy have been used in an effort to control hypertension. The principal ones may be classified under three headings: (1) diets low in sodium and fat, (2) drugs with a hypotensive or sedative effect, and (3) surgery. The form of surgical therapy that has been used most extensively is intervention on the sympathetic nervous system. There are many data in the literature concerning the short-term effects of various forms of therapy on blood pressure levels, the cardiovascular system, and symptoms. The important point, however, is the effect of a particular form of therapy on life expectancy, expressed as mortality and survival rate, regardless of its effect on blood pressure. On this point there is a paucity of data in the literature. Recent reports by one of us (R. H. S.) have emphasized this concept.[2] It is obvious that, to evaluate prognosis in a statistically significant fashion, one must follow large numbers of patients for long periods of time. For evaluation of surgical therapy, a comparable control series of patients treated otherwise, or untreated, must be available for comparison. The control patients must be studied and classified in exactly the same fashion as the surgical patients.

Since 1938, when thoracolumbar splanchnicectomy was first introduced, we have studied about 3,500 hypertensive patients. Some 2,400 of these patients have had splanchnicectomy performed, and the others have been treated medically. Of the surgical patients operated on prior to Dec. 31, 1947, 1,266 have been followed from 5 to 14 years. During the same period 467 of the patients who were studied but were not operated on have been followed from 5 to 11 years. These patients were offered surgery, but for various reasons they declined. Since data from the literature were not wholly satisfactory for comparison with our surgical series, these 467 patients served as a control series. The purpose of this article is to report the effect of thoracolumbar splanchnicectomy on the mortality and survival rates of these 1,266 patients and to compare such data with those of the 467 medically treated control patients.

There are certain characteristics of our group of patients that should be clearly pointed out. We are aware of the fact that many patients with hypertension appear to tolerate it quite well and live long, useful lives without any treatment whatsoever. On the other hand, the patients who have been referred to us had unusually severe forms of the disorder, they had not improved with current forms of therapy, or their status indicated an extremely poor prognosis. All of the patients reported on, both surgical and medical, had persistent, not intermittent, hypertension, i. e., the blood pressure when the patient was in a horizontal position was 140/90 mm. Hg or more, both when he was ambulatory and after two days of bed rest in the hospital. They had, therefore, advanced through the earlier stages of the natural history of hypertension, namely, hyperreactivity of the blood pressure without hypertension and intermittent hypertension. The vast majority when first seen had evident vascular disease, manifested either in the eyes, heart, kidneys, or brain. They were, therefore, already in the stage in which

---

Mr. John Alman of Boston University made the statistical analyses for this study.

From the departments of surgery, Massachusetts Memorial Hospitals and Boston University School of Medicine.

[1] Allen, E. V.: Symposium on the Treatment of Essential Hypertension: Introduction, Proc Staff Meet., Mayo Clin. **27**: 473-474 (Nov. 19) 1952.

[2] (*a*) Smithwick, R. H.: Hypertensive Cardiovascular Disease: Effect of Thoracolumbar Splanchnicectomy on Mortality and Survival Rates, J. A. M. A. **147**: 1611-1615 (Dec. 22) 1951; (*b*) Surgical Measures in Hypertension, American Lectures in Surgery, Monograph 61, Springfield, Ill., Charles C Thomas, Publisher, 1951.

[illegible] Library
[illegible] Medical [illegible]

32679

cardiovascular complications of hypertension had begun to occur. That our patients are representative of the severer forms of hypertensive disease is also evident from the survival curves of these patients when compared with a survival curve of the normal population of similar age and sex distribution (fig. 1).

Another point of importance is that all of the patients under consideration were first seen or operated on at a time when none of the more recently introduced hypotensive drugs or low sodium diets were available or in vogue. The surgical patients had no additional therapy prescribed on discharge from the hospital. Most of them have had no additional therapy, though in recent years some have had diets and drugs prescribed as necessary. The medical patients have, of course, had all available forms of current therapy. The results reported in this communication have not been influenced materially by "medical forms of sympathectomy" resulting from the use of adrenergic blocking drugs. It will be many years before it can be determined whether treatment by drugs of this general nature will be as effective as surgical treatment has been shown to be in significantly increasing the life expectancy of patients with the severer forms of hypertensive cardiovascular disease. It appears that in the severest cases a combination of all forms of treatment—diet, drugs, and surgery—gives the best results. In the future more patients will have dietary or drug therapy after surgery, but, as a rule, such additional therapy need not be as drastic as is the case when one depends on diet or drugs alone. It will, nevertheless, still be possible to compare surgical and medical cases, since the variable factor between otherwise comparable groups will be splanchnicectomy.

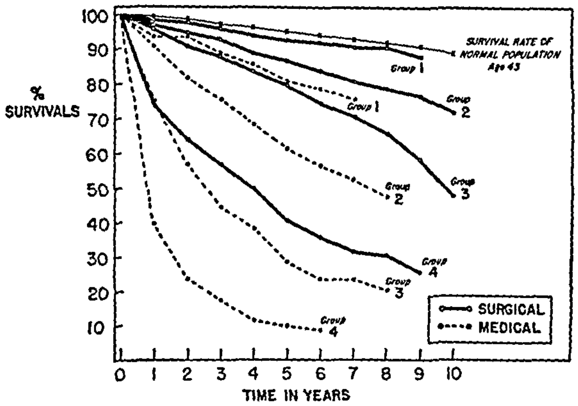


Fig. 1.—Survival curves for 1,266 surgically and 467 medically treated hypertensive patients. These curves have been constructed using the actuarial method. All patients were followed for at least five years and some for as long as 14 years, but the curves have not been carried beyond the 10 year mark in any case, because either the number of cases is too small to be significant or no further deaths occurred.

METHOD OF STUDY

It was first pointed out by Keith, Wagener, and Barker [3] that the prognosis for a hypertensive patient varies according to the status of his cardiovascular system when first examined. Unless patients with a similar degree of hypertension and of cardiovascular involvement are placed in comparable groups, no basis for comparison of results exists. This has been pointed out in a previous article,[2a] in which it was shown that mortality for different groups of unoperated patients reported in the literature varies tremendously, from 17 to 91%. We have, therefore, adopted a plan designed to control as many of the variable factors as possible, in an attempt to make the patient material in each group as comparable as possible. This plan is the best we have been able to devise to deal with the present number of cases. As the number of cases becomes larger, more variable factors can be controlled and groups can be defined more precisely.

After a careful study of the cardiovascular system as a whole, a numerical value is assigned to various factors having a bearing on prognosis. These are summarized in table 1. The numerical values for each factor present are totaled, and this gives the numerical grade for the patient. Two examples of how to determine the numerical grade are given at the bottom of table 1. If the numerical grade is less than 4 the patient will be in group 1 or 2. If the numerical grade is 4 or more the patient will be in group 3 or 4. The additional factors that determine the exact group of the patient are given in table 2. Thus the patients in group 1 have persistently elevated blood pressure, with minimal or no eyeground changes and no abnormalities in the cerebral, cardiac, or renal areas. Those in the other groups have increasing amounts of cardiovascular disease. A sedative test is done on all patients. Three grains (180 mg.) of amobarbital (Amytal) sodium are given by mouth at 7, 8, and again at 9:00 p.m. Readings of blood pressure are taken every hour from 7:00 p.m. to 7:00 a.m. The lowest reading of diastolic pressure during the sedative test is taken to be the response to sedation. To be regarded as satisfactory, the diastolic level during the sedative test should fall to 90 mm. Hg or less in patients with resting levels between 100 and 119 mm. Hg.

TABLE 1.—*Numerical Value of Various Factors That Influence Prognosis*

	Numerical Value of Each Factor
Cerebrovascular accident with or without minor residual	1
Abnormal electrocardiogram	
Enlarged heart	
or less than 60% in 2 hr.	
Age 50 or over	
Mild angina	
Cerebrovascular accident, with residual *	2
Frank congestive failure, moderate angina	
Phenolsulfonphthalein excretion, less than 20% in 15 min.	
Unsatisfactory response to sedation	
Phenolsulfonphthalein excretion, less than 15% in 15 min.	3
Nitrogen retention	4

* Cerebral deterioration or definite involvement of arm and/or leg.

Example 1

Abnormal electrocardiogram	1
Cerebrovascular accident without residual	1
Phenolsulfonphthalein excretion, 20% in 15 min.	1
Total	3 = Numerical grade of patient with hypertension

Example 2

Abnormal electrocardiogram	1
Enlarged heart	1
Phenolsulfonphthalein excretion, 10% in 15 min.	3
Total	5 = Numerical grade of patient with hypertension

---

3. Keith, N. M.; Wagener, H. P., and Barker, N. W.: Some Different Types of Essential Hypertension: Their Course and Prognosis, Am. J. M. Sc. **197**: 332-343 (March) 1939.

For patients with resting levels between 120 and 139 mm. Hg the response to sedation should be a fall to 100 mm. Hg or less. For those with resting levels of 140 mm. Hg or more, the diastolic level should fall to 110 mm. Hg or less. Otherwise, the response to sedation is regarded as unsatisfactory. Patients in both categories, surgical and medical, have been studied and classified in exactly the same fashion and can therefore be compared with respect to survival rates and mortality within the four groups.

TABLE 2.—*Classification of Hypertensive Patients*

Group	Numerical Grade	Other Factors
1	Less than 4	Eyegrounds grade 0 or 1 * No changes in cerebral, cardiac, or renal areas
2	Less than 4	Eyegrounds grade 0 or 1, with changes in cerebral, cardiac, and/or renal areas. Eyegrounds grade 2, 3, or 4 with or without changes in cerebral, cardiac, or renal areas *
3	4 or more	Resting diastolic level below 140 mm. Hg. Changes are present in cerebral, cardiac, and/or renal areas, but they do not include the following: Cerebrovascular accident, with marked residual Frank congestive failure Phenolsulfonphthalein excretion, below 15% in 15 minutes, associated with a poor response to sedation
4	4 or more	Resting diastolic blood pressure below 140 mm. Hg combined with one or more of the following: Cerebrovascular accident, with marked residual Frank congestive failure Phenolsulfonphthalein excretion, below 15% in 15 minutes, combined with a poor response to sedation Patients with a resting diastolic level of 140 mm. Hg or more

* Eyegrounds are graded according to the criteria of Keith, Wagener, and Barker.

RESULTS

Control Series.—The control series consists of 467 patients. This represents an 88% five year follow-up of the total patients originally studied. Sixty-one per cent were men and 39% women. The average age of this group was 45 years. These patients were offered surgery, but financial, personal, or reasons other than those related to the severity of the disease kept them from being operated on. In the early days of splanchnicectomy, before it was possible to exercise any degree of selection, all patients who were considered capable of surviving the operation were offered surgery. The mortality for the four groups in this series are given in table 3. Survival curves for these same patients are shown in figure 1. These survival curves have been constructed using the actuarial method, as described by Berkson and Gage.[4]

Surgical Series.—The surgical series consists of 1,266 patients. This represents a 90% five year follow-up of the total patients originally operated on. Forty-seven per cent were men and 53% women. The average age of this group was 42 years. Surgery consisted of thoracolumbar splanchnicectomy, carried out in two stages 10 days apart, through the beds of the 12th or the 11th and 12th ribs, using a retropleural, retroperitoneal, transdiaphragmatic approach.[2b] The sympathetic trunks were removed from the eight or ninth dorsal vertebra through the first or second lumbar vertebra inclusive, and the great splanchnic nerves were removed from the celiac ganglion to the midthoracic level. The adrenal glands, renal arteries, and kidneys were inspected, and renal biopsies were taken in all cases. The operative mortality has been low, ranging from 0% in group 1 to 11% in group 4, with an over-all operative mortality of 2.5%. The mortalities for the surgical series are given in table 3, where they are compared with those of the control series. The same data are presented in the form of survival curves in figure 1.

It is evident from a study of the data that the mortalities in all four surgical groups are significantly lower than in the corresponding medical groups. This is particularly true for groups 2 and 3, where the differences are quite striking and are highly significant. The difference is significant in group 1, but the number of cases in the medical group is still relatively small. More cases and a longer follow-up are needed before final evaluation of this group can be made. The difference between the group 4 cases is also very significant, but the eventual mortality is still very high. These differences are brought out in a striking fashion in figure 1, where the survival curves are compared. In the same figure is a survival curve of the normal population of similar age and sex distribution. The high mortality imposed by hypertensive cardiovascular disease is clearly shown and emphasizes the severity of the disease in the patients with whom we are dealing.

Although the important factor to be considered in evaluation of any form of treatment for hypertension is its influence on the mortality and the survival rate, the effect of treatment on the actual level of blood pressure is of considerable interest. In fact, it appears that blood pressure lowering in hypertension is desirable if it can be accomplished. It is fairly well established that in most cases the lowering of blood pressure in hypertensive patients is not harmful, providing such lowering is not excessive. The prognosis for patients whose blood pressure is lowered after splanchnicectomy is significantly better than for those whose blood pressure is not lowered by operation. Both of these groups, however, exhibit an improved prognosis when compared with the medical control series.[2b] It appears, therefore, that the outlook for hypertensive patients can be improved by splanchnicectomy even if the basal blood pressure levels are not significantly lowered postoperatively. Our data show that 45% of living operated patients have a significant lowering of basal blood pressure levels in the early years (1 to 5) after splanchnicectomy, and 55% have no change or show an increase in blood pressure.

TABLE 3.—*Mortality for Medically and Surgically Treated Hypertensive Patients**

	Medical Series		Surgical Series	
Group	No. of Cases	Mortality at 5 Yr.	No. of Cases	Mortality at 5 Yr.
1	62	19%	158	8%
2	200	38%	735	13%
3	108	71%	244	20%
4	97	90%	129	59%
Total	467	54%	1,266	19%

Statistical analysis of the comparative five year mortalities between the medical and surgical groups is as follows:

Group	Chi^2	p	Comment
1	4.92	0.03	Significant
2	60.6	< 0.001	Highly significant
3	83.2	< 0.001	Highly significant
4	24.6	< 0.001	Highly significant

* Yates correction used throughout.

---

[4] Berkson, J., and Gage, R. P.: Calculation of Survival Rates for Cancer, Proc. Staff Meet., Mayo Clin. 25: 270-286 (May 24) 1950.

To illustrate the effects of splanchnicectomy, the following cases are reported.

Case 1.—A 31-year-old man had an abnormal electrocardiogram, an enlarged heart, and congestive failure when examined prior to operation. His resting horizontal blood pressure was 160/122 mm. Hg. At examination 10 years after operation, his electrocardiogram was the same, his heart was normal in size, and there was no evidence of congestive failure. His eyegrounds showed minimal arteriovenous compression. The blood pressure (ambulatory) was 132/80 mm. Hg. This patient is an example of improvement in blood pressure and in cardiovascular status 10 years after splanchnicectomy (fig. 2).

Case 2.—A 48-year-old man had hemorrhages, exudates, and papilledema in his eyegrounds, an abnormal electrocardiogram, markedly enlarged heart, and severe congestive failure when examined prior to operation. His resting horizontal blood pressure was 204/104 mm. Hg. When examined seven and a half years postoperatively, his eyegrounds showed only arteriovenous compression and his heart was normal in all respects. His renal function showed slight evidence of impairment. His blood pressure (ambulatory) was 188/114 mm. Hg. This patient is an example of the marked improvement that may follow splanchnicectomy even though the basal blood pressure level was apparently not changed.

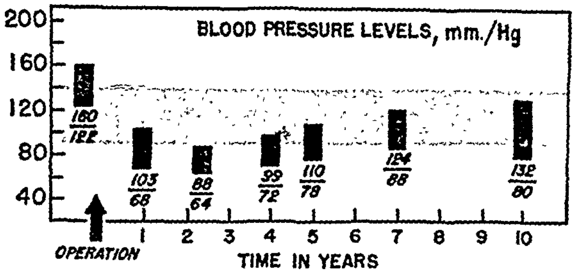


Fig. 2.—Blood pressure levels 10 years after splanchnicectomy in patient in case 1.

SELECTION OF THERAPY FOR HYPERTENSIVE PATIENTS

As pointed out earlier in this report, there are three chief modes of therapy currently available for the management of hypertensive cardiovascular disease: (1) surgery, (2) diet, and (3) drugs. In order to select the proper type of treatment for each case, it is important to evaluate the level of the blood pressure and the amount of cardiovascular disease present. Placing patients into the four groups given enables one to do this. The mortalities and survival rates for these groups then serve as a basis for selection of therapy. It should be reemphasized that only patients with persistent hypertension are meant. If the patient falls into group 1, diet and drugs comprise the usual treatment. The results following splanchnicectomy, while showing a lower long-term mortality, are not sufficiently superior to the medical results as yet to allow us to recommend surgery routinely in all such cases. This is particularly true for female patients, who appear to do well on medical therapy. It may be that group 1 men, however, should have surgery, since these patients have a considerably poorer prognosis when treated medically. Other group 1 patients who may be operated on are young patients with high resting diastolic (above 110 mm. Hg) blood pressure levels, those with intractable symptoms, those with a history of toxemia or other complications of pregnancy associated with hypertension who desire more children, and those patients who for various reasons are unable to follow a medical regimen. If the patient falls into group 2 or 3, we believe that surgery in the form of splanchnicectomy is the treatment of first choice and should be recommended. In refractory group 2 and 3 cases diet and drug therapy may have to be added to surgery to achieve maximum benefit. In group 4 cases surgery may be recommended, provided renal function is adequate and if the patient is a satisfactory surgical risk. Severe kidney damage, as indicated by persistent evidence of nitrogen retention, is the one finding that positively contraindicates splanchnicectomy in the more advanced stages of hypertensive cardiovascular disease. Although the mortality after surgery is much improved, the eventual mortality for group 4 cases is still very high. It is our belief that surgical treatment should be employed before patients are allowed to progress to group 4, if the greatest number of worthwhile results is to be obtained. At the present time the only reliable basis for the selection of patients for splanchnicectomy is the effect that surgical treatment is known to have on the life expectancy of patients in each of our four groups.

SUMMARY

A method of classifying hypertensive patients, depending on the level of blood pressure and the amount of cardiovascular disease present when first studied, is outlined. The mortalities and survival rates for 1,266 hypertensive patients treated by thoracolumbar splanchnicectomy and for 467 medically treated control patients are compared. The results following surgery are superior in all four groups (Smithwick classification), but the best results are obtained in patients who fall into groups 2 and 3. We recommend splanchnicectomy as the treatment of first choice in such cases. Patients should be operated on before they fall into group 4, since the eventual mortality for this group is high regardless of the therapy employed. An outline of our present method of selection of therapy for hypertensive patients is given, based on the known effect of surgical treatment on prognosis.

203 Commonwealth Ave. (Dr. Smithwick).

Treatment of the Thyroid Storm.—Thyroid crisis or storm represents a dramatic medical emergency. This condition was formerly encountered occasionally postoperatively when patients were inadequately prepared for surgery. It is now seen rarely in debilitated thyrotoxic patients who have been untreated for long periods and are in poor nutritional status. Treatment is begun with the application of cold compresses or ice to the entire body, including cool water enemas if marked hyperthermia is present. Demerol or morphine is used for control of severe restlessness. The patient is placed in a cold oxygen tent. Sodium iodide, 1 gram, in 1,000 cc. of 5% glucose solution is given intravenously. Sodium iodide, 500 mg., may also be given by enema. Antithyroid therapy with methylthiouracil, 600 mg., is begun immediately, then 200 mg. every six hours. Tapazole may be used in one-tenth this dosage. Sodium or potassium iodide should be continued at a high dosage level until recovery. Aqueous adrenal cortical extract should be administered as in the treatment of addisonian crisis. Further experience with cortisone or hydrocortisone is necessary for evaluation of these drugs.—M. G. Wohl, M.D., C. R. Shuman, M.D., and R. Robbins, M.D., Current Treatment of Toxic Goiter, *Medical Clinics of North America,* July, 1953.

FOLLOW-UP STUDY IN SEVENTY-FIVE CASES OF NONPARALYTIC POLIOMYELITIS

Eugene Moskowitz, M.D., Mount Vernon, N. Y.
and
Lawrence I. Kaplan, M.D., New York

Recent increases in the over-all incidence of poliomyelitis have prompted early diagnosis and hospitalization in suspected cases. This has led to the detection of a greater number of the so-called nonparalytic cases. With the advent of passive immunization with gamma globulin, as developed by Hammon and co-workers,[1] an even greater percentage of abortive and nonparalytic cases may be anticipated.

Nonparalytic poliomyelitis, as interpreted in this study, refers to cases diagnosed by clinical and laboratory findings in which the patients, at the time of discharge from the hospital, showed no evidence of muscular weakness. During routine follow-up examination of these patients in the outpatient department of Grasslands Hospital, a surprising number showed various sequelae. As a result of these casual findings, we were prompted to carry out a formal study of a large group of patients who were discharged from the hospital during the period 1947 to 1951 and who showed no muscular weakness at the time of release.

METHOD AND MATERIAL

The following procedure was adopted for the carrying out of this study. Each patient, with a parent whenever necessary, was given an initial interview, and a detailed post hospitalization history was obtained, including subjective complaints that might have been associated with poliomyelitis. Each patient was then given a complete muscle test by the chief physical therapist and afterward was thoroughly screened again by one of us. In addition to muscular abnormalities, the patients were checked for structural or postural abnormalities, including atrophy of the extremities as measured by accepted techniques (circumferences at various levels). A difference between two extremities in circumference at the same level was not in itself taken to be indicative of involvement due to poliomyelitis unless it was associated with muscular weakness. A total of 75 patients were examined, of whom 51 were children (under age 13) and 24 were adults.

RESULTS

The results of this study are shown in the following tabulation:

Total no. of patients examined	75
No. with subsequent muscular weakness	29
Percentage with subsequent muscular weakness	38.6%
Distribution of muscular weakness	
Quadriceps	11
Gastrocnemius	10
Sternocleidomastoid	4
Abdominal muscles	3
Hamstrings	3
Deltoid	2
Hip extensors	2
Triceps	1
Biceps	1
Hip flexors	1
Rhomboids	1
Anterior tibial	1

Muscular weakness was noted in 29 patients, or 38.6% of the total number of patients examined, at the time of the follow-up examination. The major segments involved were the weight bearing muscles, principally the calf and quadriceps groups. This may be explainable by the fact that all of these patients had been on only a ward activity level at the time of discharge from the hospital; therefore, there had been no adequate criterion to determine the endurance and fatigability of the weight bearing muscle groups, since these patients had not been performing their normal daily play or occupational activities.

Of the 29 patients who showed muscular weakness, 3 had some residual spasm at the time of the follow-up examination. There was no correlation between the duration of spasm in the hospital and the subsequent development of weakness. Twenty-three (30.6%) of the 75 patients examined had shown deep tendon reflex differences of varied patterns during the acute phase of the disease. Loss or diminution of tendon reflexes was not related in any way to the eventual onset of or site of muscular weakness. Seven (24.1%) of the 29 patients with subsequent weakness had symptoms referable to the segment in which the weakness was localized. A surprising number of patients (42.7%) had subjective manifestations, consisting of increased fatigability. Evidence of emotional disturbances of various types, including irritability, instability, and stuttering, were manifest in 24% of these patients. In children, increased irritability was the predominent complaint of the parents.

COMMENT

While 38.6% of a group of 75 patients with nonparalytic poliomyelitis, examined one and one-half to six years after the onset of the disease, showed weakness in one or more muscles, this is not an indication that the present methods of muscle testing should be discarded. In no instance in the above series was the muscular weakness extensive enough to appreciably interfere with the normal activities of the patient.

In the screening of mild poliomyelitis cases, either during the patients' hospital stay or during their treatment at home the diagnosis of nonparalytic poliomyelitis should not be made on the basis of a single examination. The performance of multiple, staged tests based on the general condition and activity level of the patient is pre-

---

Director of Physical Medicine and Rehabilitation (Dr. Moskowitz) and affiliated resident in Physical Medicine and Rehabilitation (Dr. Kaplan), Grasslands Hospital, Valhalla, N. Y., and Fellow, Department of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center and United States Public Health Service (Dr. Kaplan).

Miss Katherine Andrews, Chief Physical Therapist, Grasslands Hospital, gave technical assistance in this study.

[1] Hammon, W. M.; Coriell, L. L.; Wehrle, P. F., and Stokes, J.: Evaluation of Red Cross Gamma Globulin as a Prophylactic Agent for Poliomyelitis, J. A. M. A. **151**: 1272-1285 (April 11) 1953.

ferable. During the acute phase, in the presence of spasm, accurate performance of a satisfactory muscle test is impossible. As the acute manifestations subside, the patient is permitted a progressive increase of activities, and their effect on muscular fatigability, especially in the weight bearing groups of the lower extremities, should be determined. Actually, the diminished work tolerance in a muscle that is only mildly involved can be made manifest only after strenuous activity. Such a situation does not prevail during the early convalescent stage of the disease. In the presence of minimal weakness, variations occur in the muscle test, depending on the activity level of the patient, and would be evident, for example, in the quadriceps group in a child after two to three hours of play or in the gastrocnemius group in a policeman after completion of an eight hour shift.

In our series, the average hospital stay of the children was 24.4 days and of the adults, 14.4 days. There was no relationship between the length of hospital stay and subsequent appearance of muscular weakness. In addition, there was no correlation between the time of ambulation of these patients and the subsequent development of muscular weakness. It is not necessary to increase the hospital stay of a patient with the nonparalytic disease, provided the physician is alert to the possibility of the presence of undetected muscular weakness. As a matter of fact, during the 1952 season, 37 cases of nonparalytic spinal involvement were seen at Grasslands Hospital. The average stay for the adults was 10.6 days and for the children, 14.7 days. Each patient returned for a follow-up examination about one month after discharge, and no undetected muscular weakness was noted at these visits. Each patient in this group in whom there was spasm received hot packs routinely and was permitted to get out of bed as soon as he had been afebrile for five days and had no residual muscle spasm. These patients were closely supervised when allowed to become ambulant as a further check for muscular weakness and were cautioned to carry on at a restricted activity level at home until they returned for the follow-up examination.

SUMMARY

Of 75 patients with nonparalytic poliomyelitis examined one and one-half to six years after the onset of the illness, 38.6% were found to have minimal weakness in one or more muscle groups. Seven (24.1%) of these patients had symptoms referable to the site of muscular weakness. Increased general fatigability was complained of by 42.7% of the 75 patients examined, and 24% had evidences of emotional disturbances, such as irritability, instability, and stuttering.

CONCLUSIONS

1. The diagnosis of nonparalytic poliomyelitis should be made only after complete muscle testing has been done after the patient has resumed his or her normal physical activity level.

2. The average hospital stay of the patient with nonparalytic poliomyelitis can be significantly reduced, provided the patient is free of spasm and has had multiple screenings for muscular weakness.

3. In the absence of muscle spasm and respiratory difficulties, early mobilization under adequate medical supervision of the afebrile patient with nonparalytic poliomyelitis has no adverse effect on the eventual functional recovery of the patient.

Grasslands Hospital, Valhalla, N. Y. (Dr. Moskowitz).

NEW YORK CITY PLAN FOR CARE OF POLIOMYELITIS PATIENTS IN RESPIRATORS

Helen M. Wallace, M.D.
and
Leona Baumgartner, M.D., New York

The problem of patients with poliomyelitis who need care in a respirator is becoming a matter of concern to those interested in the field of long-term illness or chronic disease. The basic problems are, of course, the increase of fundamental understanding of the epidemiology of poliomyelitis and the development of methods of preventing the disease. Considerable progress is being made in these areas. There is, nevertheless, the immediate problem of adequate care of poliomyelitis patients. Public health officials, hospital administrators, and physicians have paid particular attention to the care of poliomyelitis patients in the acute stage of illness and to the rehabilitation of those patients who are orthopedically handicapped. The problems of those patients who need care in a respirator seem to have received less attention, although a few communities are attempting to develop communitywide programs for such patients. According to information from the National Foundation for Infantile Paralysis, there are approximately 1,000 patients in the country who require care in a respirator and there are seven respirator centers that can accommodate about 230 of these patients.[1] There is also evidence of interest in the development of additional centers, but no report of a community planning for the care of its own patients has been found in the literature. The materials presented in this report pose a few of the questions that arise when a community program for patients with poliomyelitis who require care in respirators is envisaged, and a few of the answers found in a recent study of the situation in New York City are given. A few of the questions to be answered are: 1. How many patients in the community will need care in a respirator? 2. What are the problems in the care now given to such patients in the community? 3. How much will adequate care cost?

From the Bureau for Handicapped Children, New York City Department of Health.

Presented at the Section on Pediatrics, New York Academy of Medicine, May 14, 1953.

[1] Landauer, K.: Personal communication to the authors.

INCIDENCE AND PREVALENCE

During the past 36 years in New York City, 29,002 cases of poliomyelitis have been reported to the New York City Department of Health, an average of 805.6 cases each year. In 29 of the 36 years (80%), less than 800 cases were reported. More than 1,000 cases per year occurred in 1916, 1931, 1935, 1944, 1949, and 1950. The percentage of hospitalized poliomyelitis patients who need respirator care has not been uniform. For example, in 1949 and 1951, hospitals in New York City reported that the percentage of patients requiring respirator care varied from 5 to 10%. This percentage obviously depends on several factors: (1) the indications for the use of a respirator determined by the medical staff in each hospital, (2) the care with which each patient's condition is evaluated against such indications, and (3) the severity of the disease. In planning adequate facilities one might assume that 8% of those patients hospitalized for poliomyelitis will need respirator care; thus, in New York City, it is calculated that, on an average, about 64 persons might need respirator care in any one year (8% of 800), exclusive of epidemic years.

In 1951, a nonepidemic year in New York City, 548 cases of poliomyelitis were reported to the New York City Department of Health. Observations in hospitals in the city during the latter part of December, 1951, and the early part of January, 1952, revealed a total of 19 respirator patients in five hospitals. The largest number of patients in any one hospital was nine; the smallest number was one. At the same time, it was known that at least five patients in respirators were being cared for at home. At least another eight had been transferred out of the city to the nearest respirator center, approximately 250 miles away, and additional patients had also been transferred to another respirator center in the East.

CARE AVAILABLE

In planning a community program for any type of patients, including those requiring respirator care, one of the first questions asked is "How good is the care now available?" Many assume that, because there are outstanding medical centers in large urban areas, the care available there is far above the usual standards. Our observations have not uniformly substantiated this assumption. The problems found on visits by a pediatrician and a hospital nursing consultant to these hospitals included lack of adequate physical facilities, of continuous medical supervision, of qualified nursing supervision, and of an adequate rehabilitation program.

An analysis of the five hospitals that provided care for respirator poliomyelitis patients in New York City in 1951 and 1952 revealed the following facts. Of the five hospitals, the pediatric staff was in charge in three and the neurology staff in one. In the fifth hospital, respirator patients were cared for by three separate services in the hospitals, pediatric, neurology, and medicine, each with its own space, physical set-up, equipment, and medical and nursing personnel. Obviously this plan meant a dispersion of nursing staff and supervision and some duplication of facilities and equipment. All the hospitals, are approved for training pediatric interns and residents by the Council on Medical Education and Hospitals of the American Medical Association, three for training in orthopedic surgery, and two for training in physical medicine and rehabilitation. Furthermore, of the five hospitals, three did not have or provide a physiatrist for consultation and supervision of the patients for the purposes of physical therapy and rehabilitation, and two did not have an orthopedist. Three of the hospitals provided physical therapy and occupational therapy staffs that could be considered adequate. The fourth hospital had some therapists but too few to give adequate care to all of the patients who needed it. The fifth hospital provided neither physical therapy nor occupational therapy. To illustrate the problem in terms of patient care, one hospital without such personnel had three poliomyelitis patients on the day of the visit. Two were in respirators. The three patients had been hospitalized for approximately five months each; none had received any physical therapy during this period of time. One of the patients had developed contractures of the arms at the elbows during this period.

Recreational staff was provided in one of the five hospitals. Most of the recreational activities in the other four hospitals consisted of watching television programs. In one hospital, the recreational program consisted of a private duty nurse, employed at the rate of $12 for each eight hours of duty, who read to the patient. With appropriate recreational activities, earlier rehabilitation might have been possible.

Many problems in the nursing care of patients were observed. In three hospitals, the regular hospital nursing staff cared for these patients; in another, nurses on a private duty basis were employed at a cost of $36 per patient for 24 hours; in the fifth, a combination of regular staff plus private duty nurses was used. Waste of nursing staff and time was evident. The illustration of the private duty nurse reading to the patient is but one example. In other instances, nurses carried out procedures such as autoclaving letters written by patients and covering patients with mosquito netting. A supervising nurse in one hospital expressed the opinion that the employment of private duty nurses on a daily basis was not the solution to the care of respirator patients because many of these nurses had not seen a respirator or a respirator patient in a good many years, if ever, and because private duty nurses received more salary than general hospital staff nurses and that created friction between the two groups.

Other nursing problems are illustrated by the situation in one hospital that had nine respirator patients, eight in two wards in one building and the ninth in another building. For the eight patients, there was no registered nurse on duty from 12 midnight until 8 a. m.; from 3 p. m. to 12 midnight there was one registered nurse who covered the two floors. These patients were cared for entirely by nonprofessional nursing personnel without nursing supervision. The ninth patient was cared for by student nurses and attendants only.

Similar problems existed in other areas of patient care also. Four of the hospitals provided a teaching staff for educational activities so that the children could continue their schooling during the period of hospitalization. The fifth hospital had no such teaching staff; the family of one child demanded that their child who had been there six months be transferred to the nearest respirator center where teaching and other services could be provided.

Four hospitals had facilities for bronchoscopy and tracheotomy and had a trained staff on call to perform these emergency procedures. The fifth hospital had a trained staff on call, but no facilities or equipment in the building in which the respirator patients were. It is evident that, if these services are needed, they are usually emergencies and, therefore, must be readily available.

Three hospitals provided psychiatric help for patients; two did not. Because of the psychological factors involved in caring for handicapped patients and in weaning patients from respirators, psychiatric consultation is certainly important in their rehabilitation.

Three of the hospitals transferred patients to the nearest respirator center 250 miles away. Reasons given for the transfer of these patients were: (1) recognition by the staff of the hospital that they were not prepared, equipped, or staffed to provide adequate rehabilitation for their patients; (2) requests by the families of patients because of some dissatisfaction with the care given; and (3) reluctance on the part of some of the hospitals to provide the long-term care that might be necessary.

COST OF CARE

The care of patients in respirators is costly. Skillful nursing, oxygen, and ancillary therapy services are items that contribute appreciably to cost. Cost figures could not be obtained from the hospitals visited. Even if they had been secured, they would probably have been of limited value because of two expensive practices, employment of private duty nurses at $36 a day and excessive use of oxygen in one hospital in which all respirator patients there received oxygen routinely and continuously. Data obtained from five respirator centers throughout the country indicate daily costs ranging from $18 to $23.

Data on the length of hospital stay for respirator poliomyelitis patients are even more difficult to obtain or evaluate. They, of course, may be directly dependent on each hospital's ability to evaluate the patient's condition and its ability to provide the necessary physical therapy and psychiatric services to wean the patient from the respirator as quickly as possible. No reliable data on length of stay were obtainable from observations in New York City hospitals.

COMMUNITY PLAN

When all of the facts were put together, it became evident that a community plan was necessary, if respirator patients were to receive the quality of care necessary for their rehabilitation by a method most economical to the community as a whole. Conferences were held with medical leaders in the city who have worked on the problem of the care of poliomyelitis patients. The New York City Department of Health, in the spring of 1952, appointed an advisory committee composed of leaders in the clinical care of poliomyelitis, pediatrics, physical medicine and rehabilitation, orthopedics, nursing, and representatives of the local chapter and national office of the National Foundation for Infantile Paralysis. Dr. Rustin McIntosh served as chairman of this committee.

At the first meeting of this committee, there was considerable discussion concerning several basic questions. Is it possible for many hospitals, each caring for only a few patients in respirators, to provide adequate total care, or is it more likely that a few respirator centers, each caring for many patients, could provide care of a high quality for maximum and early rehabilitation? If respirator centers are developed, should these centers provide care for both acute and chronic respirator patients, including those patients requiring custodial care? If respirator centers are developed, would it be helpful if standards were available to assist interested hospitals in planning facilities; if so, what should the standards contain? If respirator centers are developed, should they be a part of general hospitals? After much discussion, the committee recommended that one or more respirator centers be developed in the city, that the committee establish recommended standards, and that the centers preferably be attached to general hospitals so that the necessary ancillary services would be readily available.

In developing standards, the experience of existing centers throughout the country was called on. These standards were established by the advisory committee. The final approved standards[2] consist of sections concerning personnel of all types, physical set-up, essential equipment, techniques, policies and procedures, and home follow-up after discharge from the center.

Considerable joint planning has been done by the city health and hospitals departments, the National Foundation for Infantile Paralysis, and interested voluntary hospitals to develop centers of high caliber in the city. The approved standards are being used as a guide in the development of these centers. Two centers are currently being planned, one in a voluntary hospital and the other in a municipal hospital in conjunction with a large rehabilitation program. Both of the centers will carry on training and research activities in addition to the patient care program. The training and research activities logically belong to the large teaching hospitals connected with medical schools; for this reason, the two hospitals currently considering plans for respirator centers fall into this category.

While the plans for assisting hospitals in financing the centers are not completed, some steps have already been taken. The New York City Department of Health has asked for budgetary approval of a daily rate of $20 for the care of patients requiring financial aid in approved centers as part of the medical rehabilitation program of the Bureau for Handicapped Children. The National Foundation for Infantile Paralysis is considering possibilities of subsidy for the development of the program in the centers.

SUMMARY

This report describes the steps being taken in New York City to provide an improved quality of care for the maximum rehabilitation of poliomyelitis patients in respirators. Surveys of hospitals caring for respirator patients in the city in 1951 and 1952 showed a wide variation in the kind and quality of care given. An advisory committee was formed and was composed of experts in the field. This committee endorsed the principle of respirator centers and set up standards to be used as guides in the development of these centers. Two such centers are being developed in the city.

125 Worth St. (13) (Dr. Wallace).

---

[2] Bureau for Handicapped Children: Recommended Standards for the Care of Poliomyelitis Respirator Patients in New York City, New York City Department of Health, May, 1952.

POSTOPERATIVE ADRENAL CORTICAL INSUFFICIENCY

OCCURRENCE IN PATIENTS PREVIOUSLY TREATED WITH CORTISONE

Robert M. Salassa, M.D., Warren A. Bennett, M.D., F. Raymond Keating Jr., M.D.
and
Randall G. Sprague, M.D., Rochester, Minn.

Although therapeutic experience with cortisone has been accumulated rapidly during the past four years, the limits of therapeutic usefulness and the hazards of this and similar compounds still await precise definition. There is considerable evidence to support the view that the administration of adrenal cortical hormones may suppress adrenal function and induce adrenal atrophy. The extent, duration, and potential seriousness of this hazard in medical and surgical practice are, however, only now becoming apparent. A year ago, Fraser and coworkers[1] reported a postoperative death that was regarded as the result of acute postoperative adrenal cortical insufficiency associated with atrophy and functional suppression of the adrenal cortex induced by previous treatment with cortisone. We wish to describe two additional examples of the same surgical complication, with further observations on the occurrence in man of adrenal atrophy induced by cortisone.

REPORT OF CASES

Case 1.*—A woman, 54 years of age, entered the Mayo Clinic on Oct. 31, 1951, because of rheumatoid arthritis and epigastric distress. Four years previously, the presence of severe pain and stiffness of the joints of the hands, wrists, knees, and shoulders led to a diagnosis of rheumatoid arthritis. Beginning one year before admission, she was given 75 mg. of cortisone three times a week. After four months, the dose was increased to 100 mg. a day. She gained 20 lb. (9.1 kg.), and noticed an increase in roundness in the face and a coarsening of features. For three or four weeks before admission she complained of epigastric distress that occurred between meals, and, because of this, the dose of cortisone was reduced to 75 mg. per day.

Examination disclosed swelling and tenderness of many joints. The blood pressure was 160 mm. Hg systolic and 80 mm. Hg diastolic. The face was full. The erythrocyte count was 3.7 million per cubic millimeter; the hemoglobin content was 7 gm. per 100 cc.; the blood smears were characteristic of hypochromic microcytic anemia. Roentgen examination of the stomach revealed a penetrating gastric ulcer on the lesser curvature proximal to the pylorus. Melena was noted while the patient was in the hospital.

On Nov. 7, the patient vomited dark-brown material and suffered severe pain in the epigastrium. The blood pressure dropped, and she became cold and restless. Three transfusions totalling 2,000 cc. were given. The dose of cortisone during this period was 50 mg. per day by mouth. On Nov. 12, the dose was reduced to 37.5 mg. This dose was continued until 6 p. m., Dec. 5, when an additional 100 mg. of cortisone was given intramuscularly. On Dec. 6, a subtotal gastrectomy (Billroth I, Schoemaker modification) was carried out. The patient remained semiconscious after the operation; signs of shock appeared; and she became anuric. Despite the intramuscular administration of 300 mg. of cortisone, the woman failed to respond to emergency measures and died 30 hours after operation.

Postmortem examination was carried out 12 hours after death. The right pleural cavity contained 500 cc. and the left 150 cc. of clear yellow fluid. The heart weighed 305 gm. and was normal. The lungs weighed 1,020 gm. and showed marked congestion and edema, with patchy bronchopneumonia. The spleen and liver were normal except for slight congestion. The suture lines at the site of the recent gastrectomy were intact. The esophagus, duodenum, pancreas, bladder, kidneys, uterus, ovaries, breasts, and thyroid appeared normal.

The adrenal glands were quite atrophic; the right weighed 2.7 gm. and the left 3 gm. (fig. 1*A*). The cortex was 2 mm. thick. The bright yellow color usually seen was absent. Microscopically, there was almost complete absence of the vacuoles usually seen when the sections are stained with hematoxylin and eosin. With Sudan 4 stain, diminished quantities of lipid were noted throughout all zones (fig. 1*B*). The medulla appeared normal. The pituitary body was smaller than normal, and microscopic sections disclosed a loss of granularity in the basophils, with hyalinization and vacuolization (fig. 1*C*). (See fig. 3 for comparison with the normal gland.)

The shock and anuria that followed operation in this patient did not seem commensurate with the uneventful operation and anesthesia that preceded it. The appearance of hypercortisonism and the changes observed in the adrenal and pituitary glands at necropsy constituted the only positive necropsy findings apart from pulmonary edema. They appeared to offer adequate evidence for the assumption that the final shock was due to acute adrenal cortical insufficiency resulting from prior cortisone therapy.

Case 2.—A woman, 54 years of age, entered the Mayo Clinic on Aug. 18, 1952, for treatment of rheumatoid arthritis. Eight years previously, swelling of the right distal interphalangeal joints and of the right instep and heel occurred. Subsequently, the hands, feet, knees, elbows, ankles, and shoulders became progressively involved, with many acute episodes of joint pain and swelling in various locations. In 1949, the patient was treated with colloidal gold and in 1950 and 1951, she received four courses of cortisone or corticotropin (ACTH) by injection; this was interspersed sporadically with cortisone given orally. During the preceding year, she received two injections of cortisone a week, and, on eight occasions, two injections per day for one week. During the vigorous treatment with cortisone, she noticed a rounding of her face. A year previously, a cystocele and a rectocele had been repaired without untoward reaction while the patient was receiving substantial doses of cortisone.

Examination disclosed a blood pressure of 122/80 mm. Hg. The patient weighed 120 lb. (54.4 kg.). The ankles were slightly edematous, and the face was round and florid. The joints of the fingers and knees were deformed, and there was tenderness over the lumbar part of the spinal column. The sedimentation rate was 115 mm. in one hour. Treatment with cortisone was discontinued on the patient's admission. A total of 422 mg. of hydrocortisone was injected into the knees, left shoulder, and ankles on six occasions between Aug. 23 and Dec. 22. There was little untoward reaction to withdrawal of cortisone after

---

Read before the 102nd Annual Session General Scientific Meeting of the American Medical Association, New York, June 1, 1953.

Because of space limitations, the bibliographic references have been omitted in The Journal and will appear in the authors' reprints.

From the Division of Medicine (Drs. Salassa, Keating, and Sprague) and the Section of Pathologic Anatomy (Dr. Bennett), the Mayo Clinic.

* The relationship of gastrointestinal lesions to cortisone therapy in this case is discussed in detail by Sauer, W. G.; Dearing, W. H., and Wollaeger, E. E.: Gastrointestinal Manifestations Possibly Related to the Administration of Cortisone and Corticotropin, Proc. Staff Meet., Mayo Clin., to be published.

the first two weeks. Signs of hypercortisonism persisted for about six weeks after withdrawal of the drug. On Nov. 3, urinary excretion of 17-ketosteroids was 1 mg. per 24 hours.

On Jan. 7, 1953, a bilateral bunionectomy was performed. The patient withstood this procedure well, but 15 hours after operation irreversible shock developed. Despite treatment with 125 mg. of cortisone given intramuscularly and 100 mg. of hydrocortisone given intravenously 30 minutes before death, the woman died 16 hours after the operation.

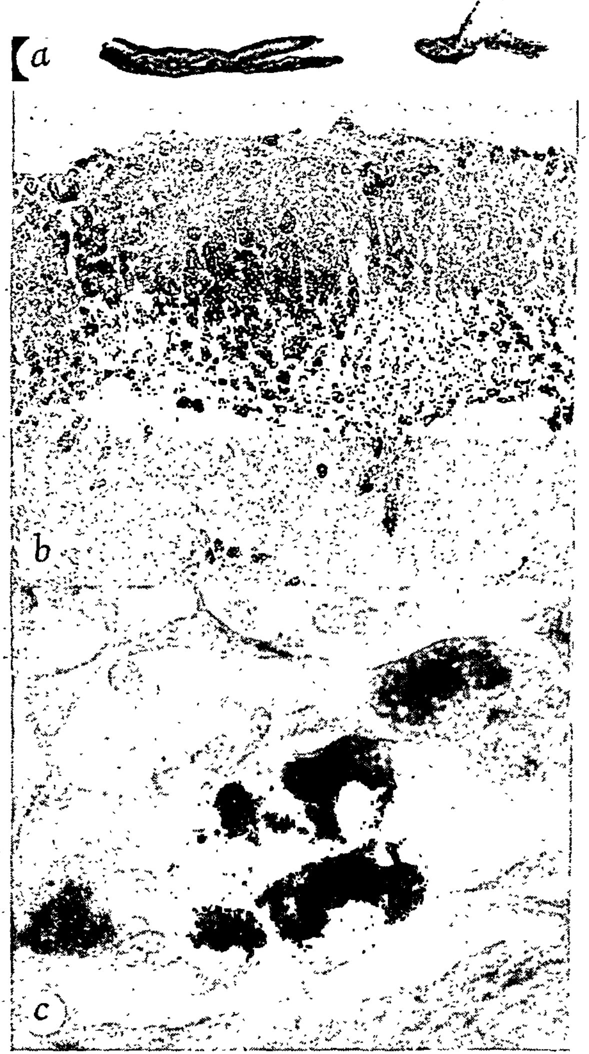


Fig. 1.—Specimens in case 1: *A*, gross appearance of adrenals (5.7 gm.) showing marked atrophy of cortex with zone of congestion in the zona reticularis; *B*, adrenal showing loss of sudanophilic material in all zones of the cortex, irregular loss in zona fasciculata, and narrowing of cortex (Sudan 4 stain, × 55); and *C*, cross section of pituitary showing loss of granules in cytoplasm of basophils and hyalinization with vacuolization in two cells (Crooke's stain, × 1,050).

At post mortem, the lungs weighed 755 gm., and moderate pulmonary edema was evident on microscopic examination. Focal areas of organizing lipid pneumonia were also observed. The heart, spleen, liver, gastrointestinal tract, pancreas, kidneys, bladder, ovaries, and breasts appeared normal. The thyroid contained several cystic and degenerated colloid adenomas. The right adrenal weighed 3.8 gm. and the left 3.7 gm. (fig. 2*A*). Examination of routine microscopic sections revealed that the adrenal cortex was approximately 1 mm. thick and that there was loss of vacuolization and increase in granularity of the cells of the zona fasciculata. With Sudan 4 stain, there was evidence of diminished lipid throughout the zona fasciculata and zona reticularis, with a patchy decrease in lipid in the zona glomerulosa (fig. 2*B*). The medulla was normal. There was no apparent decrease in the number of cells in the adrenal cortex, but the cells were smaller than normal. The nuclei were prominent.

The pituitary weighed 0.6 gm. (normal weight 0.7 to 1.1 gm.). The cut surface was glistening yellow-white with irregular follicles. Microscopic examination disclosed a decrease in the number of basophils. Most of the basophils showed degranulation with hyalinization and vacuolization (fig. 2*C*). This alterative process involved all the basophils; no normal basophils could be found.

Except for six intra-articular injections of hydrocortisone, this patient had not had steroid hormone therapy for four and a half months preceding operation. On admission she had severe hypercortisonism, clinical manifestations of which had disappeared three months before operation. Although urinary 17-ketosteroids were greatly reduced two months preceding operation, a finding suggesting adrenal suppression, the long interval without cortisone undoubtedly led to the false assumption that a mild surgical procedure could be undertaken without preoperative treatment. Nevertheless, symptoms consistent with fulminating acute adrenal insufficiency devel-

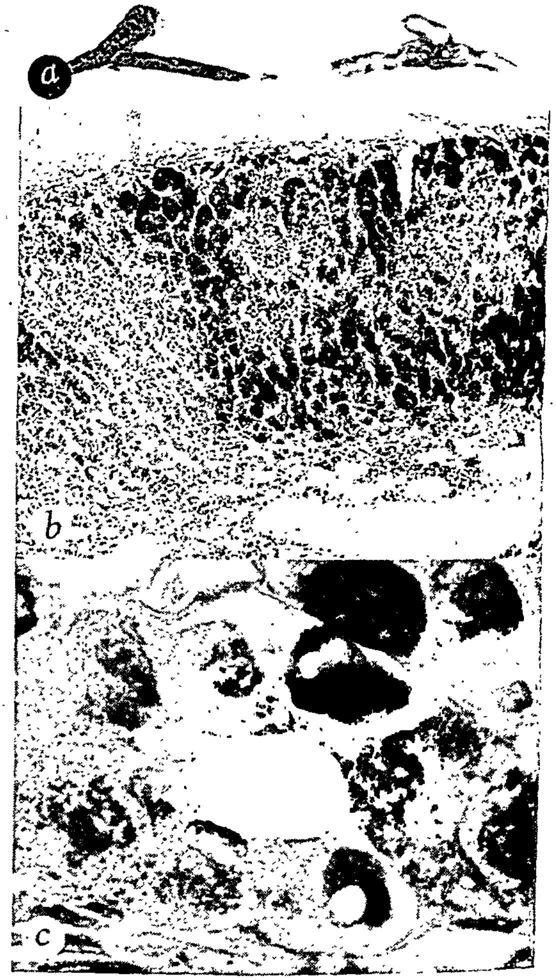


Fig. 2.—Specimens in case 2: *A*, gross appearance of adrenals (7.5 gm.) showing atrophy of adrenal cortex, with congestion of the zona reticularis; *B*, adrenal showing disease of sudanophilic material in zona glomerulosa and irregular areas of diminished lipid in other two zones (Sudan 4 stain, × 55); and *C*, pituitary showing loss of granules in cytoplasm of basophils, a few hyalinized basophils, and vacuolated changes similar to Crooke's changes in basophils (Crooke's stain, × 1,050).

oped 14 hours postoperatively, and the patient died despite emergency measures. The atrophy of the adrenals and pituitary constituted the only significant necropsy findings and provided anatomic support for the conclusion that the suppressive effect of prior cortisone therapy was the cause of the postoperative adrenal cortical crisis and death, even though treatment with cortisone had been discontinued four and a half months before.

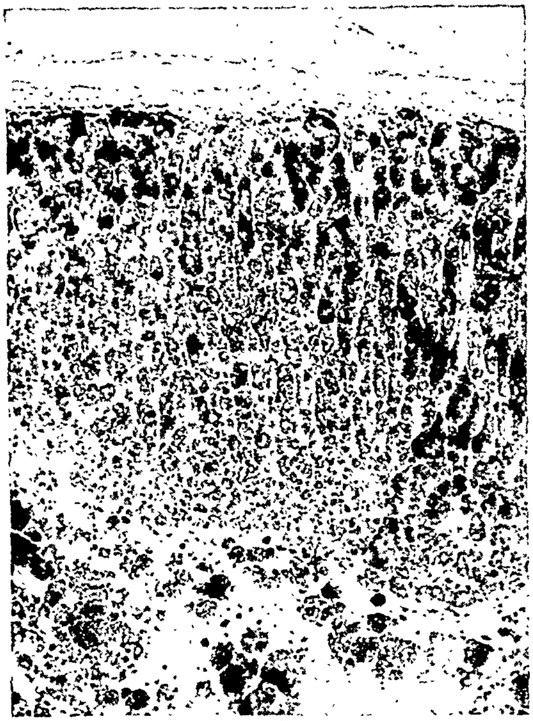


Fig. 3.—Adrenal gland illustrating normal pattern of three distinct zones of adrenal cortex (Sudan 4 stain, × 55).

ADDITIONAL OBSERVATIONS ON ADRENAL CHANGES

In order to investigate the occurrence of adrenal atrophy further, the weights of the adrenal glands of 46 adult patients who died of various conditions for which they had received cortisone were compared with the weights of the adrenal glands of 42 patients who died of similar conditions but who had never received cortisone. These data are summarized in figure 4. While the average adrenal weight was significantly decreased in the group treated with cortisone, conspicuous adrenal atrophy occurred in only a small proportion of cases. The relationship of adrenal atrophy to the duration and time of treatment is given in detail in the table.

In nine patients who received cortisone for less than five days (four received it until the day of death), adrenal weights were always within the normal range and histological changes were lacking. The most consistent reduction in adrenal weight occurred in 10 patients who received cortisone for five or more days and until the day before death. The mean weights of the adrenals were significantly reduced in the groups of patients who were treated with cortisone for five or more days and in whom treatment with cortisone was discontinued within 20 days before death; in the groups of patients in whom treatment with the drug was discontinued for at least 21 days before death, there was no significant reduction in the mean weights of the adrenals. The data obtained are too limited to permit further correlation with either dose or duration of therapy.

It is important to note, however, that pronounced adrenal changes were observed on histological examination in a great majority of the patients who received cortisone, even though the combined weights of the adrenals were well within the normal range. This is illustrated in figure 5 showing marked loss of lipid material in the zona fasciculata and the zona glomerulosa of adrenals that were normal in weight (13.7 gm.) and gross appearance. The patient received cortisone in a dose of 100 mg. a day for 13 days until 16 days before death from subacute lupus erythematosus.

Relationship of Adrenal Atrophy to Duration and Time of Treatment

Group	No. of Cases	Adrenal Weight, Gm. Range	 Mean ± S. E.*	 P †
Untreated	42	8.0-19.2	12.6 ± 0.5	—
Treated, total	46	5.0-16.8	9.8 ± 0.4	0.01
Less than 5 days	9	10.6-14.4	11.8 ± 0.4	0.1
5 days or more	37	5.0-16.8	9.2 ± 0.4	0.01
Treated until death	10	5.7- 9.8	7.9 ± 0.5	0.01
Treatment discontinued				
1-10 days before death	12	5.0-13.1	8.6 ± 0.6	0.01
11-20 days before death	6	7.4-13.7	9.7 ± 0.9	0.05
21-30 days before death	4	6.7-16.6	11.0 ± 2.2	0.1
31 or more days before death	5	7.8-14.6	10.7 ± 1.2	0.1

* S. E. = standard error.
† P = probability.

The changes in the adrenal cortex that seem to be characteristic of previous cortisone administration appear to be loss of lipid content of cells of both the zona glomerulosa and the zona fasciculata. Where this has occurred, an eosinophilic granular cytoplasm is seen. The cells shrink and cause decreased thickness of the cortex, but there is no apparent decrease in the number of cortical cells. Rather, they appear to be compressed, with an increase in the nuclear-cytoplasmic ratio. In adrenals examined after treatment with cortisone has been omitted for several weeks or months, evidences of recovery are seen. These consist of the appearance of more lipid material in the cells of the zona glomerulosa and the outer portions of the zone fasciculata. This material seems to replace the granules of the cytoplasm with vacuoles of

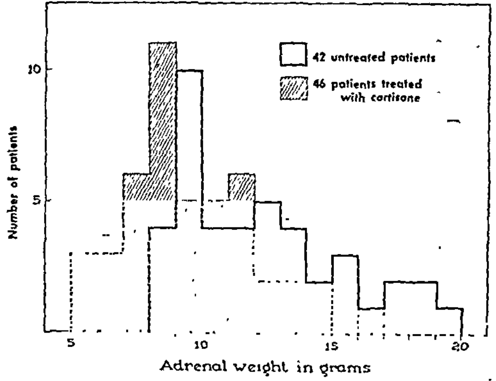


Fig. 4.—Adrenal weights of 46 patients treated with cortisone compared with adrenal weights of 42 patients not treated with cortisone.

varying size that, on frozen section, are filled with sudanophilic substance or lipid. This process proceeds in a patchy fashion, and in some areas there may be island-like projections throughout the thickness of the cortex. The zona reticularis loses its lipid last and often maintains a certain amount of lipid even in the severest cases in which it is depleted in the other zones.

PRIOR OBSERVATIONS

The earliest observations of adrenal suppression by adrenal hormone were clinical. Eighteen years ago, Kepler [2] stated: "In the presence of a hyperfunctioning tumor of one adrenal gland, the other may be absent or atrophic. Even when normal, the other gland apparently may temporarily cease to function after operation. Following surgical procedure, it is advisable to observe the patient carefully for acute adrenal insufficiency, and if this develops, to administer promptly the adrenal hormone and saline." A review of the literature some years later indicated clearly that if such a plan of management was followed, then the mortality rate that followed removal of a hyperfunctioning adrenal cortical tumor was extremely low, whereas if it was not, the mortality rate was extremely high owing almost entirely to postoperative adrenal cortical insufficiency.[3] The evidence reported here provides ample reason to regard postoperative patients just relieved of hyperfunctioning adrenal cortical tumors and postoperative patients previously treated with cortisone as suffering from the same physiological defect in adrenal function.

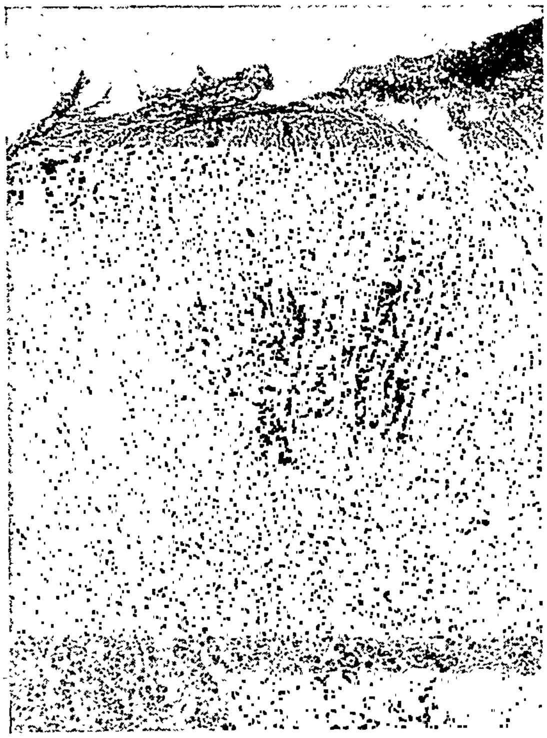


Fig. 5.—Section of adrenal glands of normal weight (13.7 gm.) in patient who received 1.3 gm. of cortisone; most of sudanophilic material lost (Sudan 4 stain, × 55).

Experimental Data.—In 1937 and 1938, Ingle and his associates [4] demonstrated that administration of adrenal cortical extract, cortisone, and compounds A and B resulted in atrophy of the adrenal cortex of rats. Winter, Silber, and Stoerk [5] observed that parenteral administration of 3 mg. of cortisone a day for 10 days reduced the adrenal weight of rats by 40%. After omission of cortisone, recovery was detectable in 4 days, well advanced in 10 days, and complete in 45 days. Other authors have reported atrophy of the adrenal cortex of rats after five days of cortisone administration.[6] Stebbins [7] observed that the glandular parenchyma was restored to normal appearance 17 days after the administration of cortisone was discontinued.

It is generally agreed that the atrophy of the adrenal cortex induced by exogenous adrenal steroids is entirely the result of decreased secretion of endogenous corticotropin by the anterior pituitary. Clear-cut evidence that this is the case was first provided by Ingle,[8] who demonstrated that adrenal atrophy did not occur in normal rats or rats having had a hypophysectomy that were given adrenal hormones when pituitary extract containing corticotropin was also given. Stebbins [9] found that administration of cortisone could not further reduce the adrenal weight in rats having had a hypophysectomy, while Lewis and co-workers [10] also found that cortisone would not induce atrophy of the adrenal cortex of similarly treated rats maintained on corticotropin. The concept that adrenal cortical atrophy resulting from cortisone reflects diminished production of corticotropin gains further support from the observation that the histological appearance of the adrenal cortex of rats treated with cortisone is similar to that of rats that have had a hypophysectomy.[11] Sayers and Sayers [12] have demonstrated that a variety of adrenal cortical hormones, particularly cortisone and hydrocortisone, can inhibit the release of corticotropin in rats subjected to various forms of stress. Golden and Bondy [13] observed Crooke's changes in the basophils of the anterior pituitary as well as atrophy of the adrenal cortex after giving rats 3 mg. of cortisone a day for 10 days. Administration of 1 mg. of corticotropin per day resulted in similar extensive Crooke's changes in pituitary basophils, but these were, of course, accompanied by marked adrenal cortical hyperplasia.

Clinical Observations.—Clinical studies [14] have disclosed the following evidence suggestive of depressed adrenal cortical function following treatment with cortisone in man: 1. Many patients have complained of weakness and fatigability that persisted for variable periods of time after withdrawal of cortisone. 2. Urinary excretion of 17-ketosteroids sometimes decreased soon after administration of cortisone, and this diminished excretion sometimes persisted throughout the period of therapy and for a variable period afterward. 3. The ability of the adrenal cortex to respond to one or several doses of corticotropin, as measured by decreased concentration of eosinophils or by increased urinary excretion of 17-ketosteroids or of 17-21-hydroxy-20-ketosteroids, is diminished by long-term administration of cortisone.

Adrenal cortical atrophy has been found at necropsy in some patients who received cortisone.[15] O'Donnell and co-workers [15b] found evidence of histological repair in one case in which death occurred 17 days after cortisone was last given. In a second patient with multiple myeloma who had received 6 gm. of cortisone in 31 days (the last dose given 51 days before death), the zona reticularis and the zona fasciculata were mildly hypertrophic.

Fraser and associates [1] observed fatal postoperative adrenal insufficiency after an orthopedic operation. The patient had received a large amount of cortisone; the dose was reduced to 25 mg. twice a day two months before operation and discontinued two days before operation. The patient apparently did not have hypercortisonism at any time. At necropsy, atrophy of both adrenals was observed.

In patients with Cushing's syndrome resulting from a hyperfunctioning adrenal cortical tumor, Crooke's changes with increase in pituitary basophils have been observed.[16] In some instances of this condition, objective evidence of adrenal insufficiency has persisted as long as a year after removal of the hyperfunctioning tumor (observation at the time of operation showed that atrophy existed in the opposite adrenal gland). Laqueur [17] observed Crooke's changes in pituitary basophils of patients treated with cortisone. Golden and associates [18] have found both Crooke's changes and an increase in the number of pituitary basophils of patients treated with corticotropin.

Kilby and Bennett [19] have recently correlated various morphological changes observed in the pituitary with the amount and duration of therapy with corticotropin or cortisone in 77 cases. The earliest changes observed were degranulation of basophils, with formation of homogeneous cytoplasm that presented an appearance of ground glass. This was followed by vacuolization of basophils with increased hyaline material in the cytoplasm; this material was situated at the periphery initially but then progressively involved most of the cytoplasm. At this stage, the appearance strongly resembled the changes described by Crooke [16] in 1935 in the pituitaries of patients with Cushing's disease. The cytoplasm often appeared to be reticulated with an increase in the size of cells and in the nucleolar-nucleus ratio [20] (these may represent the amphophils of Mellgren). In cases in which treatment resulted in hypercortisonism, most of the basophils showed hyalinization with vacuolization of the cytoplasm. These changes were associated both with cortisone and with corticotropin therapy, but they were most pronounced in those cases in which corticotropin was given; they occurred after relatively small doses of this substance. The smallest dose of cortisone resulting in pituitary changes was 100 mg. a day for four days. This was also accompanied by adrenal changes of the type previously described.

From the evidence presented it seems reasonably clear (1) that cortisone is capable of producing atrophy of the adrenal cortex, (2) that this atrophy may be associated with impaired adrenal cortical function, (3) that both the atrophy and the accompanying functional impairment may outlast (perhaps occasionally for a long time) the withdrawal of cortisone, (4) that adrenal atrophy and impaired function may lead to acute adrenal cortical insufficiency in the face of sufficient stress, such as an operation, and (5) that these effects are due entirely to suppressed production of endogenous corticotropin by the patient's pituitary. This implies, of course, that administration of corticotropin may have the same hazard as the administration of cortisone.

It has been suggested that the use of corticotropin instead of, or together with, cortisone or hydrocortisone will eliminate the risk of impaired adrenal insufficiency. From what is known of the action of exogenous corticotropin, this seems quite improbable. The activity of exogenous corticotropin is of short duration, and, while the resulting adrenal hyperplasia may last for some interval after discontinuing treatment with corticotropin, there is reason to doubt that increased functional activity of the adrenal cortex does so. Since corticotropin appears as effective as cortisone in producing histological changes in the pituitary gland in man and experimental animals, it would seem safest to assume that the endogenous secretion of corticotropin is depressed by exogenous corticotropin and that postoperative adrenal insufficiency is just as likely to follow corticotropin therapy as cortisone therapy.

CLINICAL EVALUATION OF SURGICAL RISKS

The large number of conditions for which cortisone is employed and the large number of patients to whom it is given represent an important clinical problem that must be considered whenever any patient is to undergo surgical treatment. The clinical problem entails (1) the selection from among patients who have ever been treated with cortisone or corticotropin those likely to have sufficiently impaired pituitary and adrenal function to be liable to the development of adrenal cortical insufficiency as a result of surgical stress, (2) the prevention of adrenal cortical insufficiency in those patients whom the clinician considers susceptible, and (3) the treatment of postoperative adrenal cortical insufficiency when it appears in those instances in which clinical acumen was poor or prophylactic replacement therapy was withheld or inadequate.

It is difficult, at present, to decide which patients are liable to adrenal cortical insufficiency as the result of previous therapy with adrenal or pituitary hormones. Since such complications apparently have not been observed frequently and since many thousands of patients who previously have received cortisone or corticotropin must have been operated on, it is probable that many such patients are able to withstand the stress of an operation uneventfully and without replacement therapy.

How then is one to determine which few patients are liable to adrenal insufficiency and should receive prophylactic replacement therapy? If all patients are to be protected from all potential hazards, we may be obliged to act on the basis of what we do not know rather than on the basis of what we do know. We do not know the minimal or maximal interval that must elapse after withdrawal of cortisone before the suppressive effect may be considered to be certainly abolished. It would be most unwise to assume that this interval is short. On present evidence, it seems safest to suppose that any patient who has received cortisone in significant quantities within three to six months should receive prophylactic therapy. Patients with marked hypercortisonism (whether of natural origin or induced by medication) may be more liable to persistence of impaired pituitary and adrenal function than those who have merely had maintenance therapy. On the basis of case 2, as well as past experience with the postoperative behavior of hyperfunctioning adrenal tumors, we feel that any patient who has had severe hypercortisonism within one to one and a half years before an operation should perhaps be treated as though he were liable to acute adrenal insufficiency.

We do not know the shortest period of treatment that will produce adrenal suppression. There is evidence that suppression may occur in some instances after five days of treatment with cortisone. We do not know the minimal dose of cortisone that will impair adrenal function. Theoretically, any dose equalling or exceeding the daily physiological requirement may suppress endogenous function. This may not be a very large dose; perhaps a dose of only 20 mg. of cortisone a day may be suppressive. We do not know that there is any reason to consider such minimal doses any less dangerous than much larger ones, except perhaps in cases in which frank hypercortisonism has occurred. Lastly, while it is quite evident that there exists a great deal of individual variation in susceptibility or resistance to pituitary and adrenal suppression, we do not know how to anticipate or measure such individual variations.

It is difficult to say what reliance should be placed on tests of adrenal cortical function. Urinary excretion of corticosteroids or 17-ketosteroids, response to administration of corticotropin in terms of both depression of eosinophils and changes in urinary excretion of steroids, the "water test," and the Cutler-Power-Wilder test are all procedures that give some measure of adrenal function. If these indicate impaired adrenal function, they should, of course, be taken seriously in evaluating surgical risk. Unfortunately, in the current state of knowledge, it may not be safe to assume that a patient with normal responses to such procedures possesses adrenal cortical function entirely adequate to cope with the stress of an operation. The only entirely reassuring measure of the ability of the adrenal cortex to function safely would be its response to a stress comparable to that represented by the proposed surgical procedure. Since this is not possible at present, every patient who has been exposed to cortisone therapy in the terms that have been described should be regarded during and after a surgical procedure as potentially liable to the development of postoperative adrenal cortical insufficiency.

PREOPERATIVE AND POSTOPERATIVE MANAGEMENT

In those instances in which the clinician regards postoperative adrenal cortical insufficiency a serious hazard, preoperative or prophylactic treatment may be given. The purpose of such preoperative treatment is to provide a sufficient depot of adrenal steroid in the muscle to insure an adequate and continuing supply of adrenal hormone at critical times during and after the operation. On the basis of experience gained in the preoperative and postoperative management of patients known to have Addison's disease, pituitary insufficiency, or hyperfunctioning adrenal cortical tumors and patients subjected to total adrenalectomy as treatment for hypertension or metastatic carcinoma, the following regimen may be proposed: 200 mg. of cortisone are given intramuscularly 48 hours, 24 hours, and 1 or 2 hours before operation. Cortisone given orally before operation may be of no advantage since its effects are of short duration and hence no steroid depot, such as is desired, is thereby created. If preoperative cortisone therapy is given, the dose of cortisone is gradually reduced after the operation. The rate of reduction of the dose and the duration of therapy after operation are determined by the condition of the patient. Usually treatment with cortisone is discontinued in three or four days. There seems to be no reason to fear untoward effects of such doses provided they are not given for long periods of time.

We believe that all patients who give a history of prior therapy with cortisone, regardless of whether they have been considered suitable subjects for preoperative or prophylactic treatment, should be followed postoperatively as though the surgeon expected to encounter adrenal cortical insufficiency. They should be closely observed, particularly during the first 24 hours after operation. Temperature, pulse, and blood pressure should probably be recorded at hourly intervals during this period.

Certain special precautions may, in some instances, enable patients to avoid difficulty. They should not be made to fast for an excessive period of time. If possible, the operation should be performed early in the morning rather than late in the day. Furthermore, patients should not be given excessive quantities of 5% solution of glucose and distilled water. The postoperative management of the water and electrolyte balance in patients with real or potential adrenal insufficiency is at best a difficult matter, but there seems to be no doubt that such patients do not tolerate excessive quantities of water. For this reason, glucose without sodium chloride solution should probably not be given. Also, such patients for reasons that are not understood, are sometimes adversely affected by morphine or its derivatives. Morphine or related substances, if given at all, should be used in small quantities; it would perhaps be best to use alternative types of narcotics.

If, in spite of all efforts, adrenal cortical insufficiency does occur, it appears that it is most likely to happen during the first 24 hours after operation. It is perhaps most likely to appear as a sudden circulatory collapse, fall in blood pressure, rise in pulse rate, and, perhaps, elevation of temperature. The patient may become unconscious rather quickly. Any of these symptoms should be regarded as indicating a serious emergency. The administration of an isotonic solution of sodium chloride or 5% glucose in an isotonic solution of sodium chloride should be started at once. If solutions of cortisone or hydrocortisone for intravenous use are available, they may be life-saving in such circumstances and should be given promptly. If solutions of steroids for intravenous use are not available, large quantities of aqueous adrenal extract should be administered both intramuscularly and intravenously (the latter by adding it to the sodium chloride solution administered intravenously). Four milligrams of norepinephrine added to the sodium chloride solution appears to aid in controlling circulatory collapse and extreme hypotension. Although it may have no immediate effect, 200 mg. of cortisone may be given intramuscularly, since it will ultimately become effective if the patient can be maintained during the first 24 hours by more rapidly acting preparations. If a patient is conscious and not nauseated or vomiting, 100 to 200 mg. of cortisone may be given orally. It is well to remember that while the activity of cortisone by this route is prompt, the duration of the activity is short (probably does not exceed eight hours).

In order to protect all patients from this surgical risk, the present state of knowledge may require that we treat many patients unnecessarily. This seems justifiable in order to protect the few who may undergo a serious hazard, particularly since there seems to be very little reason to fear that the measures proposed will be injurious even though they may be unnecessary. Until we have much more information than at present, it would be better to treat patients who do not require it than to withhold treatment and careful observation from those who do.

Finally, the fact that the use of cortisone, hydrocortisone, and corticotropin may introduce a new and serious hazard to future surgical treatment should provide physicians with an additional reason for making certain that the indications for which these drugs are used are reasonable and appropriate. There seems to be no reason, however, to regard this hazard as contraindicating the use of these drugs in those conditions in which they have real therapeutic advantages.

SUMMARY AND CONCLUSIONS

Cortisone may cause adrenal cortical atrophy and impair adrenal cortical function. These effects may outlast treatment for substantial intervals of time. They are regarded as the result of impaired production of endogenous corticotropin (ACTH) by the patient's pituitary gland. It seems reasonable to presume that the administration of exogenous corticotropin or hydrocortisone also produces this effect, and it is expected that treatment with these latter, like treatment with cortisone, would also be followed by adrenal suppression.

Two cases are presented in which acute postoperative adrenal cortical insufficiency was regarded as the cause of death. In both cases, anatomic changes in the adrenal glands were found that were considered the result of previous treatment with cortisone. Pathological studies in 46 cases in which cortisone treatment was used previously also indicated the ability of this substance to induce adrenal atrophy.

It is advisable to consider carefully the hazard of potential adrenal cortical insufficiency in any patient who requires surgical treatment and who has had previous treatment with cortisone, hydrocortisone, or corticotropin. Those patients in whom this hazard is considered serious should be treated prophylactically with cortisone given intramuscularly before operation. All patients who have had prior therapy with these hormones, whether treated prophylactically or not, should be observed with great care so as to avoid postoperative adrenal cortical insufficiency if possible and to treat it promptly in those few instances in which it is encountered.

GENITOURINARY COMPLICATIONS OF PELVIC FRACTURES

Donald E. Newland, M.D., Denver

This age of speed and great industrialization in which we are living has resulted in a considerable increase in the incidence of pelvic fractures. The frequency of associated urologic complications has risen in proportion. The effect of the automobile and the airplane on the frequency of these injuries, as well as their complications, is readily appreciated by references to the literature. Thirty-five years ago, only 4% of the cases of ruptured bladder were due to vehicular accidents.[1] Twenty years ago, Noland and Conwell [2] found that 35% of the cases of pelvic fracture were due to this cause, while only five years ago, Butt and Moore [3] reported that 73% of their cases were related to such accidents.

It has long been known that the cause of death, in those patients who had pelvic fractures complicated by injury to the urinary tract and who survived the initial injury, was urinary extravasation and infection. Although the wide use of plasma and whole blood has been extremely important in combating the initial shock and decreasing the early mortality, the advent of chemotherapy has undoubtedly been the prime factor in reducing the later mortality and morbidity from urologic complications. It has permitted wider use of the urethral catheter for diversion of the urine. It has reduced the severity of stricture formation in urethral injuries by controlling the infection usually associated with an indwelling catheter. It has prevented the systemic sepsis often accompanying these injuries and has permitted conservative treatment.

In spite of the merits of chemotherapy, the physician must not forget or disregard the primary surgical principles: (1) combat shock, (2) make an early and accurate diagnosis, (3) divert the urine, and (4) drain extravasated urine.[4] The adherence to these principles alone decreased the mortality from 78% in 1907 to 23% in 1942.[4]

In order to verify the value of chemotherapy in reducing the mortality and to determine the incidence of urologic complications, a study was made of the records of all cases of pelvic fracture during the period from 1947 to 1952 at Colorado General, Denver General, and St. Luke's hospitals. There was a total of 357 cases of pelvic fracture admitted to the three hospitals during this five year period (table 1). The incidence of urologic complications was 14%, 6.3%, and 3.8% in the respective institutions, with an average of 7.3%. The reported incidence of these complications in the literature varies widely and ranges from 7 to 40%.[3] The mortality rates in the group with no urologic complications were 6.7%,

---

Read at the Sixth Clinical Session of the American Medical Association, Denver, Dec. 5, 1952.

[1] Campbell, M. F.: Urologic Injuries, Am. J. Surg. **30**: 327-341, 1935.

[2] Noland, L., and Conwell, H. E.: Acute Fractures of the Pelvis: Treatment and Results in 125 Cases, J. A. M. A. **94**: 174-178 (Jan. 18) 1930.

[3] Butt, A. J., and Moore, T. D.: Urologic Complications of Pelvic Fractures, South. Surgeon **13**: 508-520, 1947.

[4] McCague, E. J., and Semans, J. H.: The Management of Traumatic Rupture of the Urethra and Bladder Complicating Fracture of the Pelvis, J. Urol. **52**: 36-41, 1944.

13.5%, and 4.8% respectively, with an average of 8.3%. On the other hand, the mortality rates in the group with these complications were 25%, 33%, and 0, respectively, with an average of 19.3%.

It would appear from these figures that injury to the urinary tract more than doubled the mortality rate. An analysis of the case records showed, however, that in not a single case was death directly attributable to the urinary tract injury (table 2). All of those patients who died had extensive multiple injuries and lived only 4 to 24 hours; therefore, they can be eliminated in computing the mortality rate from urologic complications. There were no deaths in the group that survived the so-called initial injury period, and undoubtedly chemotherapy along with adequate, early surgery has done much to further reduce the once high mortality of these complications.

TABLE 1.—*Incidence and Outcome of Genitourinary Complications in Pelvic Fractures in Three Hospitals Over Period of Five Years*

Hospital	No. of Cases of Pelvic Fracture	No. of Cases With G.U. Complications	Deaths Without G.U. Complications	Deaths With G.U. Complications
Colorado General Hospital	86	12 (14%)	5 (6.7%)	3 (25%)
Denver General Hospital...	142	9 (6.3%)	18 (13.5%)	3 (33%)
St. Luke's Hospital.........	129	5 (3.8%)	6 (4.8%)	0
Totals	357	26 (7.3%)	29 (8.3%)	6 (19.3%)

Injuries to the bladder and urethra are the commonest urologic complications associated with fractures of the pelvis,[5] but occasionally damage to the ureters or kidneys may occur. Only those conditions involving the bladder and urethra will be discussed in this paper.

EXAMINATION OF PATIENT WITH FRACTURED PELVIS

The frequency of these complications demands that the urinary tract of every patient with a fractured pelvis be investigated to determine whether or not there is any damage to these organs. When one considers that the usual signs and symptoms may be misleading, it becomes apparent that a definite diagnostic procedure should be followed. For instance, a patient with a ruptured bladder may void clear urine, while a patient with only a contused bladder may void extremely bloody urine. Also, the pain and tenderness in the suprapubic area usually associated with bladder injuries may be due entirely to the bony injuries.

Accordingly, the following investigative plan is recommended. As soon as roentgenograms have been made confirming the diangosis of a fractured pelvis, a rectal examination should be done. If there has been complete severance of the urethra at its junction with the prostate, the normal outlines of the gland will not be palpable; in fact, one will feel only a soft, boggy mass in the usual location of the prostate as the gland is retracted anteriorly and superiorly. The remaining space is filled by a large hematoma. If this examination reveals no abnormality or if confirmation of a diagnosis is desired, then an attempt should be made to pass a soft rubber catheter. This, of course, should be done with gentleness and under aseptic conditions. If the catheter passes easily, it is very important that it be left in place until the physician is completely satisfied that there is no injury to the urethra or bladder.

The facility with which the initial catheterization is done and the fact that a clear urine is obtained may lead the physician to believe that there has been no damage to the urethra; therefore, the catheter is removed, and the physician later finds that it cannot be reintroduced. It is then necessary to do a suprapubic cystostomy that might have been avoided if the catheter had been left in place.

After insertion of the catheter, 150 cc. of a 10% solution of an opaque medium, such as that used in intravenous pyelography, should be injected. This medium is recommended because it is relatively innocuous and will be absorbed or drained if surgery is performed. It is certainly preferable to oily types of medium that remain in the tissues for long periods or to sodium iodide that has certain irritating properties. A simple anterior-posterior film usually shows the presence or absence of rupture, although an additional oblique view may be helpful.

The injection and withdrawal of a measured amount of isotonic sodium chloride solution is to be condemned. If the bladder rent is small or if it is large but occluded by a piece of bowel, one may withdraw the same amount of fluid as injected even if the bladder is ruptured. Also, the catheter may become occluded by a blood clot so that less fluid is withdrawn than injected, even though the bladder is intact.

Use of the catheter and the retrograde cystogram is not accepted by all urologists because of the danger of increasing extravasation and spreading infection. I have found, however, that its main advantage has been to give almost infallible information immediately without any apparent ill effects. A cystogram may be secured by injection of dye intravenously. The main disadvantage to this method is that the patient is in from moderate to severe shock at the time the information is desired; therefore, the procedure has little value until shock has subsided and renal function has improved. Cystoscopy as a diagnostic procedure should be done only as a last resort, after all other diagnostic measures have failed to demonstrate a suspected injury. I have seen only two cases in which all other methods failed to disclose a ruptured bladder; yet such a lesion was found by cystoscopy.

TABLE 2.—*Causes of Death in Patients with Genitourinary Complications of Pelvic Fractures*

Causes of Death in Patients with Pelvic Fractures and Genitourinary Complications	Genitourinary Complications Present
1. Arteriosclerotic heart disease with recent and old infarction	Hematoma of bladder
2. Fractured pelvis, ankle, and vertebrae; died before full extent of injuries was determined	Thought to have a ruptured bladder
3. Subdural hematoma and fractured left leg and pelvis	Ruptured membranous urethra
4. Fractured ribs with hemothorax and lacerated liver with hemoperitoneum	Urethral bleeding
5. Acute pulmonary edema and fractured ribs and pelvis	Ruptured bladder
6. Ruptured spleen	Perivesical hemorrhage

DIAGNOSIS AND TREATMENT OF INJURY

The diagnosis of injuries to the urethra is usually not too difficult. The appearance of a slight or profuse amount of blood at the meatus before the patient has attempted to void means damage to the urethra at some point distal to the triangular ligament. If the injury is above this point, then there is no bleeding at the meatus, unless the patient has attempted to void.

---

[5] McCague, E. J.: Factors Influencing Mortality and Morbidity in the Intrapelvic Ruptures of the Urethra and Bladder, Tr. Am. A. Genito-Urin. Surgeons (1942) 35: 307-316, 1943.

The extent of the injury can usually be determined by the introduction of a soft rubber catheter. If there is complete severance of the canal, then the two ends usually separate, and since they are at different levels the catheter cannot be passed beyond this point. With only partial laceration, the catheter may pass easily into the bladder. If difficulty is encountered in passing an ordinary straight or Robinson catheter, the use of a coudé or Tiemann catheter may permit passage because the curved tip tends to follow the anterior wall of the urethra, which is usually intact if there is only partial severance. Occasionally, catheterization can be accomplished under anesthesia in cases in which it cannot be done otherwise, but, again, gentle manipulation is essential to avoid increasing the damage already present in the urethra.

The importance of catheterization is stressed because, if it can be accomplished, the catheter, if left in place, will provide urinary drainage as well as a splint on which the urethra can repair itself, and further surgery may not be necessary. Of course, infection may develop later in the traumatized area and may require incision and drainage.

In the case of complete severance of the urethra, catheterization is usually impossible for the reasons already stated; therefore, it is necessary to perform a suprapubic cystostomy for diversion of the urine. At cystostomy, it may be possible, with the use of Davis interlocking sounds, to bring the two severed ends together and to introduce a catheter through the urethra as a splint. If it is impossible to bring the two ends of the urethra together in this way, then open surgical repair is usually not advisable at the time of the injury because (1) a perineal incision is necessary, but the patient's poor condition often precludes this additional surgery; (2) the required lithotomy position is not advisable, because of the injuries to the pelvis; and (3) the added factor of possible hemorrhage into the perineal tissues makes dissection and identification of structures difficult. The optimum time for this surgery will vary with each case and will depend on associated injuries, patient's general condition, and presence or absence of infection. It certainly should not be delayed for several months, as the formation of dense scar tissue then makes the repair extremely difficult.

If the rupture involves the membranous urethra superior to the triangular ligament, then surgery is usually necessary because the most frequent injury to this portion is complete severance. This condition demands suprapubic exploration to reestablish continuity of the urethra as well as to drain extravasated urine. Since it is impossible to suture the prostatic urethra to the membranous portion, the Foley catheter has become an invaluable aid in treatment.[6] At the time of surgery, a Foley catheter is inserted into the meatus and through the anterior urethra. The tip of the catheter can be palpated as it emerges from the severed membranous urethra. It may then be difficult or impossible to introduce the tip into the prostatic urethra. This difficulty can be overcome by opening the bladder and introducing a second catheter from above. When it appears at the apex of the prostate, it is grasped and sutured to the Foley catheter. Traction on the upper catheter will draw the Foley through the prostatic urethra and into the bladder. After this maneuver, the Foley catheter bag is inflated, and the bladder opening is sutured. When the patient has been returned to bed, traction is placed on the catheter thus approximating the two ends of the urethra until healing can take place. This traction can be applied by various means, but it is believed that the use of an extension cord, with an attached weight, over a pulley at the foot of the bed is preferable. This gives a constant pull regardless of the position of the patient in bed. Usually a one-half to a one pound (226.8 to 463.59 gm.) weight is sufficient to accomplish the necessary approximation.

The end-result of most injuries to the urethra is the formation of a so-called traumatic stricture; therefore, all patients with urethral injuries should receive urethral dilatations for an indefinite period. Some may require this treatment for as long as they live. Uhle [7] reports that stricture formation is severer in the external urethra than in the membranous urethra above the triangular ligament, and this has proved true in my experience.

COMMENT

The diagnosis of bladder injuries has been discussed with the investigative procedure to be followed in fractures of the pelvis. Such injuries vary from contusions, which require no treatment other than catheter drainage, to lacerations, which require surgical therapy. The procedure at the time of surgery depends on the location and size of the laceration and on whether the lesion is extraperitoneal or intraperitoneal. If, however, a rupture is suspected but cannot be verified, it is preferable to do exploratory surgery than to permit such an injury to go untreated. Exploration is made through a suprapubic incision. In the common extraperitoneal rupture, blood and urine are encountered as soon as the perivesical space is entered. If the rupture is intraperitoneal, then there is no urine in this area, but blood may be present as a result of the pelvic fractures.

In all doubtful cases, the peritoneum should be opened to determine the presence of blood and urine in this cavity. If either is found, the laceration should be located and sutured. Even if an extraperitoneal rupture is found, it is often advisable to open the peritoneum so that associated injuries to other abdominal organs are not overlooked.

Small extraperitoneal lacerations not readily accessible for suturing usually require no more than drainage of the perivesical spaces. These lacerations approximate and heal spontaneously, if the bladder is kept empty. This can be accomplished with an indwelling urethral catheter. The use of a de Pezzer catheter for suprapubic drainage of the urine is usually not necessary in this type of case but may be used if desired. The most important factor is drainage of the extravasated urine.

---

[6] Ormond, J. K., and Fairey, P. W.: Urethral Rupture at Apex of the Prostate: Complication of Fracture of the Pelvis, J. A. M. A. **149**: 15-18 (May 3) 1952.

[7] Uhle, C. A. W., and Erb, H. R.: Reconstruction of the Membranous Urethra: Case Reports, J. Urol. **52**: 42-60, 1944.

REPORT OF CASES

CASE 1.—A white man, 45 years of age, was admitted to the hospital on Nov. 3, 1949, approximately 30 minutes after a large, heavy piece of refrigeration equipment fell on him and crushed his pelvis. Initial examination revealed him to be in extreme shock, with rapid, thready pulse and blood pressure of 40/0 mm. Hg. Plasma was administered, and supportive therapy was instituted immediately. Films of the pelvis revealed complete fractures with fragmentation of the pubic rami on both sides and a fracture of the neck of the left femur. A soft rubber catheter was passed through the urethra, and only a small amount of bloody fluid was obtained. Injection of 150 cc. of 10% iodopyracet (Diodrast) solution was made through the catheter. A film revealed the dye to be extravasated along the lateral wall of the pelvis and nothing simulating a normal bladder outline (fig. 1).

Even though it was evident that this patient's bladder was ruptured, nothing could be done surgically because of the patient's precarious condition. During the next 18 hours, the patient received two units of plasma and 3,000 cc. of whole blood. At the end of this period, it was believed that improvement was sufficient to allow surgical drainage and repair of the ruptured bladder.

On exploration through a suprapubic incision, a large amount of bloody fluid was encountered in the area around the bladder. Since the possibility of associated injury to intraperitoneal viscera had not been excluded, the peritoneum was opened. It was closed when no blood or fluid was found. Further exploration in the extraperitoneal pelvic area showed that the prostate was torn free of its fascial attachments and that the membranous urethra was completely severed. In addition, the bladder was almost completely avulsed from the gland; it was still joined only at the trigone (fig. 2). During this procedure, a number of free spicules of bone were removed from the pelvic cavity. The repair was accomplished by passing a Foley catheter through the external and prostatic portions of the urethra into the bladder. The bag was inflated to permit traction. No attempt was made to suture the severed membranous urethra. The bladder was sutured to the superior surface of the prostate gland.

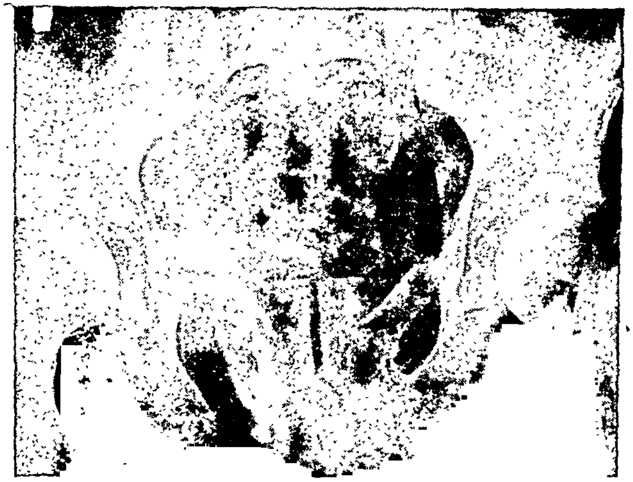


Fig. 1.—Generalized pelvic extravasation of dye with no semblance of bladder outline.

When the patient was returned to bed, tension was applied to the Foley catheter by running a cord from the catheter over a pulley at the foot of the bed and suspending a one-half pound (226.8 gm.) weight at the end of the cord. This constant pull served to approximate the torn membranous urethra until healing could take place. The patient made a slow recovery that was complicated by bilateral bronchopneumonia. After removal of the urethral catheter on the 18th postoperative day, the patient was able to void freely, with complete urinary control. Since then, it has been possible to maintain an urethral caliber of no. 24 French catheter with only intermittent dilatations.

This case demonstrates not only the likelihood of repair but the prospect of obtaining a good functional result even in the severest bladder and urethral injuries. It also reemphasizes the value of the Foley catheter as a traction agent in reapproximation of the urethra in cases in which suturing is impossible or not feasible.

CASE 2.—A 25-year-old white man was admitted to the hospital on Oct. 29, 1949, about eight hours after injury. He stated that he was riding on the fender of a dump truck when he slipped and fell to the ground and the back wheels of the truck passed over his pelvis.

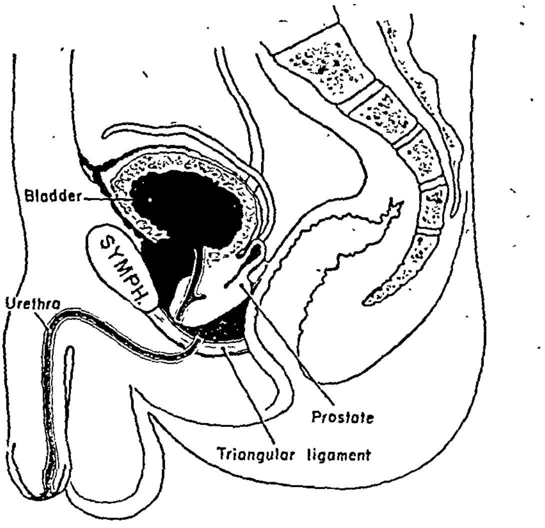


Fig. 2.—Schematic drawing of injuries to bladder and urethra

On admission, the patient was in mild shock, so measures were taken to correct that condition. Films of the pelvis revealed multiple fractures. A Foley catheter was introduced, and 400 cc. of grossly clear urine was obtained; however, microscopic examination revealed that it contained many red blood cells. Urologic consultation was not requested since it was believed that the patient had a contused rather than a ruptured bladder because of the large amount of urine obtained at the initial catheterization and because the urine was not grossly bloody.

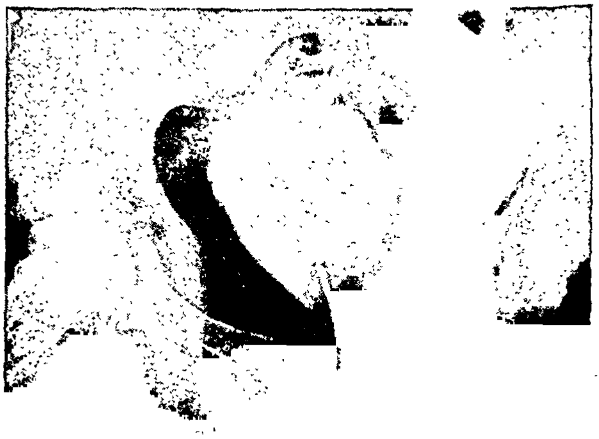


Fig. 3.—Cystogram showing small amount of dye extravasated in region of membranous urethra.

I first saw the man on Oct. 31, 1949, two days after his injury, because the urine draining from the indwelling catheter had become increasingly bloody. Examination revealed the patient to be acutely ill, with a fever of 102 F. There was some tenderness and slight rigidity of the lower abdomen; this was more pronounced on the right side. Palpation of the scrotum disclosed generalized tenderness and induration of the entire sac. Auscultation of the chest revealed numerous rales throughout both lungs. A cystogram showed the general bladder outline to be normal but extravasation of the dye low on the right side of the pelvis (fig. 3). These findings, together with the indurated scrotum, indicated that patient had a tear in the membranous urethra extending both above and below the triangular ligament.

It was decided to treat this patient conservatively because (1) his general condition was not good, (2) he had evidence of a developing pneumonia, and (3) as he had had an indwelling catheter since his initial examination, the extravasation of urine had been held to a minimum. Pneumonia with atelectasis of the right upper lobe did develop, but the patient recovered from this as well as from his other injuries. The urologic complications cleared without treatment other than catheter drainage.

The course of treatment followed in this case is certainly not recommended except in the rare instance in which it is believed that the shock of a surgical procedure may do the patient more harm than good. It does emphasize, however, what can be accomplished by diversion of the urine and chemotherapy, if the occasion demands. It also demonstrates the value of leaving the catheter inserted until the condition of the urinary tract is fully determined.

Case 3.—A white boy, 2 years of age, was struck by an automobile about 10:30 a. m. on Aug. 10, 1949. He was given emergency treatment at the Denver General Hospital and then transferred to Porter Hospital. Roentgenograms revealed fractures of the left clavicle, of the fourth, sixth, seventh, and eighth ribs on the left side, and of both ascending pubic rami.

The boy was treated for severe shock, but injury to the bladder was not suspected until eight hours later, when he voided 15 cc. of bloody urine. Urologic consultation was requested, and an intravenous pyelogram was done, since the patient was no longer in shock. This pyelogram disclosed extravasation of the dye to the right of the normal bladder outline (fig. 4). He was immediately taken to surgery where exploration disclosed a large amount of bloody urine in both lateral extravesical spaces. A bluish discoloration was noted under the peritoneum, and, on opening the peritoneum, free blood was encountered. Further exploration disclosed transverse laceration of the spleen. The patient's condition was so poor that splenectomy was not considered; the laceration was packed with oxidized cellulose (Hemo-Pak) and the peritoneum closed. A de Pezzer catheter was inserted in the bladder, and no attempt was made to close the laceration. The patient had a very stormy course for the first four days and then improved rapidly. The catheter was removed on the 10th day, and the suprapubic sinus healed spontaneously. He was discharged on the 14th hospital day for convalescent care at home.

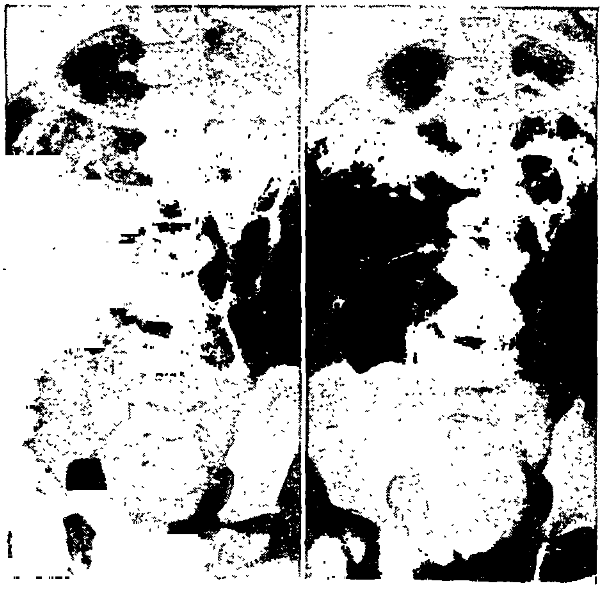


Fig. 4.—Intravenous pyelograms revealing dye extravasated along right side of bladder.

This case emphasizes the importance of intraperitoneal exploration at the time of surgery even though an extraperitoneal rupture of the bladder is found. It also demonstrates the value of intravenous pyelography as a diagnostic agent.

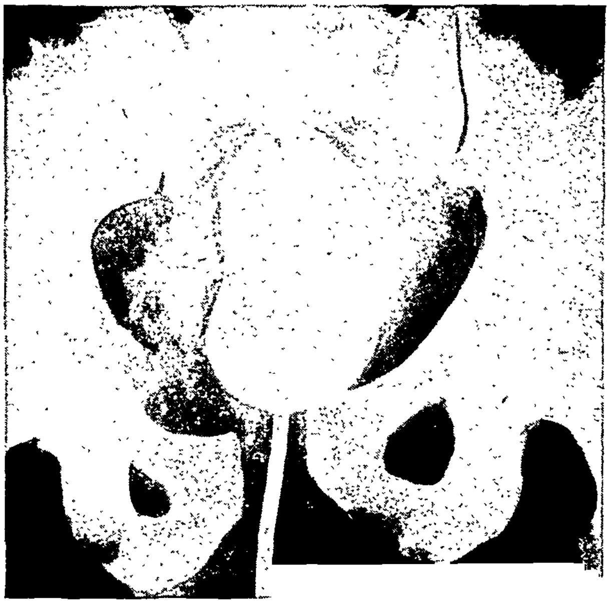


Fig. 5.—Cystogram showing extravasation of dye with bilateral vesical tears.

Case 4.—A white man, 31 years old, was admitted to the hospital on Nov. 19, 1947, approximately eight hours after a large log had rolled over his pelvis. His only complaint was pain in the suprapubic area; examination disclosed marked tenderness in this area. There was no evidence of shock. Roentgenograms revealed separation of the symphysis, with displacement of the sacroiliac joints. A soft rubber catheter was passed easily, and 375 cc. of slightly blood-tinged urine was obtained. Films made after injection of the dye showed a bilateral extravasation (fig. 5). Repair of the lacerations was done through a suprapubic incision, and Penrose drains were left in both lateral perivesical spaces. The bladder was drained with an indwelling urethral catheter. After this procedure, the patient made an uneventful recovery.

This case emphasizes the fact that there can be extensive injury to the bladder,[8] even though a large amount of relatively clear urine is obtained on catheterization.

Case 5.—A Spanish-American man, 38 years of age, was working on the roof of a building when he slipped and fell approximately six feet and landed astride a 2 by 8 in. joist. When he was admitted to the hospital on Sept. 16, 1952, about two hours after injury, he complained of pain in the perineum and a constant desire to void but inability to do so. Examination disclosed no evidence of shock, although there was profuse bleeding from the urethral meatus. There was a large hematoma involving the perineum and the inner aspect of the left thigh. A fracture of the left descending pubic ramus was revealed roentgenologically. It was evident that this patient suffered severe trauma to the urethra, with partial or complete rupture. In order to determine the extent of the injury, attempts were made to pass straight and coudé catheters, but both were obstructed in the bulbous portion of the urethra. The patient was taken to surgery where preparation had been made to do a suprapubic exploration, if another attempted catheterization was unsuccessful. A spinal anesthetic was administered, and gentle attempts were again made to pass a catheter. A no. 16 coudé soft rubber catheter was inserted rather readily in the bladder and taped in place. The indwelling catheter was removed on the 10th day; after that, the patient was able to void freely with normal control. By this time the hematomas in the perineum and on the thigh had been almost completely absorbed and did not require incision and drainage.

---

[8] Prather, G. C., and Kaiser, T. F.: The Bladder in Fracture of the Bony Pelvis: The Significance of a "Tear Drop Bladder" as Shown by Cystogram, J. Urol. 63: 1019-1030, 1950.

This case demonstrates the advantage of the use of anesthesia in some instances of urethral injury in which catheterization is unsuccessful otherwise. It also emphasizes the value of chemotherapy in the treatment of these cases. This patient would have undoubtedly had a stormy course with infection around the catheter and in the areas of hematoma if it had not been for these drugs.

SUMMARY

The frequency of urinary tract injuries associated with fractures of the pelvis demands that every such case be investigated for this complication. A suggested diagnostic procedure is outlined. An analysis of 357 cases of pelvic fracture shows that genitourinary complications do not increase the mortality rate of these injuries. Individual case histories illustrate the manner of treating these complications and the role of chemotherapy in reducing mortality and morbidity.

915 Republic Bldg. (2).

RESPIRATORY DISORDERS AMONG WELDERS

Robert Charr, M.D., Philadelphia

Welding is a method of fusing metals in which an electric arc is formed between a metal electrode and the material to be welded. During the process the electrode melts and forms a bond. The electrode is made of the same metal as that being welded. The commonly used electrode is steel, which, on heating, gives off fumes containing particles of iron oxide measuring 0.5 millimicron in diameter. The electrodes usually are coated, and the coating, on heating, forms a gaseous cone that prevents the molten metal from evaporating too readily. The composition of the coating varies, but fluorides, silicates, borates, aluminum, cadmium, and chromium are found in different products. Of these, fluorides and cadmium are the most irritating, and there is reason to believe chromium may be carcinogenic.

The fumes of welding, particularly those arising from fluorides, cadmium, and chromium, are irritating to the mucosa of the respiratory tract. Cough, expectoration, chest pain, sense of oppression about the thorax, and hemoptysis with fever known as metal fume fever may develop as an acute reaction. These symptoms subside on avoidance of exposure to the fumes. If the exposure is continued, roentgenologic changes in the lungs, such as exaggerated linear shadows in some and nodulation in others, may occur. The increased linear markings and the nodulation seen in roentgenograms apparently are due to deposition of ferrous particles within the perivascular and peribronchial lymphatics. It is generally believed that these pulmonary changes are not disabling. In occasional instances, however, they may be harmful.

REPORT OF CASES

CASE 1.—W. M., a 61-year-old man, had done welding for 12 years, using only steel electrodes. In 1949, dyspnea became so pronounced that it was difficult for him to continue working. In addition to dyspnea he had cough, expectoration, and pain in his chest. In 1952, it was necessary for him to discontinue working. Physical examination showed an undernourished man with cyanosis and respiratory rate of 40 per minute. The chest was rounded and showed the signs of emphysema. A chest roentgenogram suggested diffuse pulmonary fibrosis throughout both lungs, characterized by exaggeration of the lung markings without definite evidence of nodulations (fig. 1). The lower third of each lung appeared emphysematous. The heart was long and narrow, and the diaphragm was depressed on both sides.

CASE 2.—C. D., a 50-year-old man had been a welder for 24 years. His complaints were dyspnea, cough, expectoration and sensation of oppression in his chest. The principal findings were pronounced cyanosis and clubbed fingers. The chest was rounded, and there was very little expansion of the chest on inspiration. Throughout the lungs were sonorous rales. The respiratory rate at rest was about 40 per minute. A chest roentgenogram showed exaggeration of the lung markings in the lower half of each lung, particularly about the hilar areas. In addition, there was some fibrosis in the right upper lobe in the first interspace. In the right lower lobe near the heart were scattered fine deposits. The diaphragm was depressed on both sides.

CASE 3.—H. C., a 50-year-old man, had been a welder for six years, working mostly with steel. At times he worked with galvanized metal, which contains lead. His chief complaints were shortness of breath on exertion, cough, expectoration, and constant sensation of oppression in his chest. The roentgenogram (fig. 2) showed exaggerated tissue markings throughout both lungs, particularly about the hilar regions. In addition, there were fine nodular deposits in the lower half of each lung. Although the patient was ambulant, he had constant substernal discomfort. After he had done no welding for six months, he had another roentgenologic examination. Some of the changes noted earlier had disappeared.

These three men found it difficult to continue working as welders. Although it was not possible to carry out accurate tests such as pulmonary function studies and biopsies of the pulmonary tissues, there was no doubt as to the severity of their symptoms. It is true that the symptoms are those of emphysema, not necessarily related to welding; therefore, one may question the validity of incriminating their occupation.

CASE 4.—J. G., a 34-year-old man, had been a welder for some years. A roentgenogram (fig. 3) showed diffuse nodular deposits throughout both lungs, almost typical of changes seen in the second stage of silicosis.

CASE 5.—E. G., a 59-year-old man, had been a welder for a number of years. The roentgenogram showed exaggerated pulmonary markings throughout both lungs, with scattered fine nodulation on both sides.

These two men, despite lung changes and other related symptoms, were able to continue working, although under some difficulty.

Presented at the Regional Meeting of the American College of Chest Physicians, Philadelphia, May 7, 1953.

From Jefferson Medical College, Philadelphia Tuberculosis and Health Association, and Pennsylvania Hospital.

Case 6.—G. D., a 35-year-old man, had been a welder for over 15 years, working chiefly in confined spaces such as submarine chambers. Most of the time he used steel electrodes. His chief complaints were cough, expectoration, pain in the chest, and shortness of breath on exertion. Physical examination showed cyanosis of the lips and fingernails. The chest was normal in shape, but expansion was poor on both sides, with dullness over the upper lobe of each lung. Over the entire chest the breath sounds were exaggerated, with occasional musical rales over the upper lobes. The roentgenogram showed considerable fibrosis in both lungs, particularly in the upper lobes. Sputum examinations were positive for acid-fast organisms. After six months of complete bed rest with antimicrobial therapy, the patient improved sufficiently to return to work. At present he is symptom free aside from persistent substernal discomfort and dyspnea on exertion.

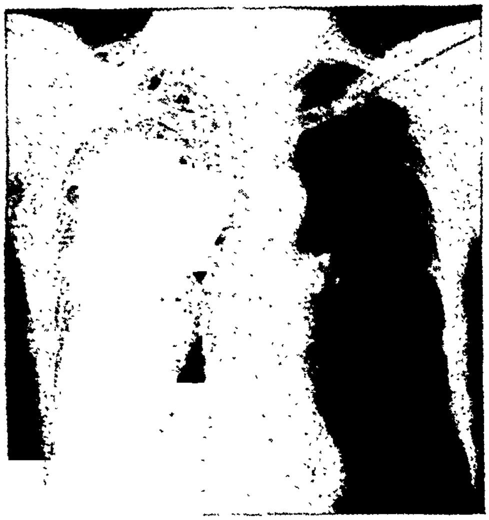


Fig. 1 (case 1).—Roentgenogram showing emphysema and possible pulmonary fibrosis.

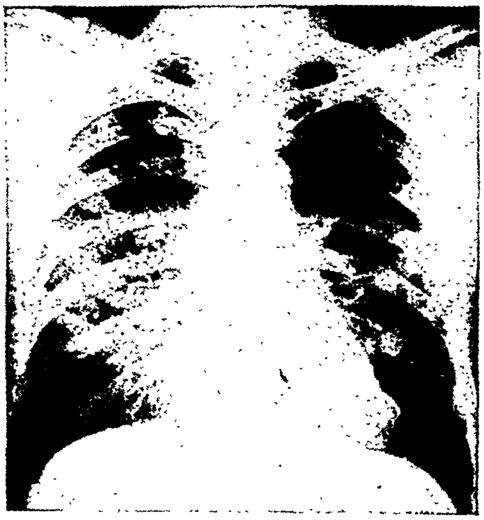


Fig. 2 (case 3).—Roentgenogram showing diffuse changes in the middle third of each lung.

Case 7.—A. G., a 45-year-old man, had been a welder over 16 years. Most of the time he used steel electrodes, but on several occasions he used chrome electrodes, the fumes of which made him extremely uncomfortable. The discomfort was entirely due to choking sensation, difficulty in breathing, and substernal pain. In 1942 he was found to have acute tuberculosis involving the left upper lobe with cavitation. Thoracoplasty was done. During the past seven years he has been working full time as a welder without relapse.

Tuberculosis does not appear to be a frequent complication of pulmonary changes in welders, although there are no large statistical studies on this subject. The clinical course of tuberculosis in welders appears about the same as that in the general population.

COMMENT

Doig and McLaughlin [1] and Enzer and Sanders [2] described pulmonary changes seen in chest roentgenograms of welders. They pointed out that the changes were indistinguishable from those in silicosis; however, in persons with silicosis the changes are permanent, but in welders, on cessation of exposure, the changes may disappear as noted in case 3.

Iron dusts are generally considered inert when inhaled into the lungs. The particles are deposited in the lymphoid tissues and do not cause fibrosis or serious tissue changes.

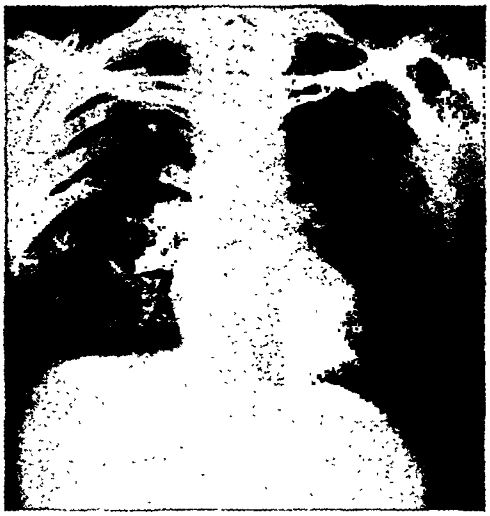


Fig. 3 (case 4).—Roentgenogram showing nodulation in both lungs.

Roentgenologic lung changes have been produced experimentally in animals, but the tissues showed no fibrosis or other reaction. Enzer [3] did a post mortem of the lungs of a welder and found deposits of particles in the perivascular and peribronchial lymphatic spaces but found no fibrosis, as in silicosis.

There is no functional impairment of the lungs with such iron deposits, either in appearance of clinical symptoms or in susceptibility of the patient to complicating infections. The condition is not crippling as is silicosis. Once the exposure is stopped, the disease does not progress. Many welders have cough and expectoration but no dyspnea. They have good chest expansion and good tolerance for exercise. In short, inhalation of welding fumes is not seriously incapacitating. Enzer [3] had agreed that inhalation of iron dust produced by welding operations did not produce fibrosis but recently, after examining two disabled welders, was less inclined to accept the idea that pulmonary disability never results.

---

[1] Doig, A. T., and McLaughlin, A. I. G.: X Ray Appearances of the Lungs of Electric Arc Welders, Lancet 1: 771, 1936.

[2] Enzer, N., and Sander, O. A.: Chronic Lung Changes in Electric Arc Welders, J. Indust. Hyg. & Toxicol. 20: 333, 1938.

[3] Enzer, N.: Personal communication to the author.

Doig and Duguid [4] studied 240 welders, and their conclusion was that most of the welders had some irritation of the throat as well as the larynx. The incidence of nasal catarrah and frequent colds was higher among welders than in the general population. Cough, expectoration, and discomfort in the chest, together with the physical signs of emphysema, were common. In a group of welders with a long duration of employment, particularly those who had worked in confined places, abnormal roentgenologic changes that could not be differentiated from silicosis were frequently noted. It was found, however, that on cessation of exposure to welding fumes these changes disappeared, which suggests that the iron particles were inert and easily removed by the phagocytes. Among these 240 welders, the incidence of tuberculosis and other serious pulmonary diseases was not greater than would be expected in the general population. Doig and Duguid concluded that inhalation of welding fumes, particularly fumes containing iron oxide particles, was not disabling but could cause acute respiratory symptoms that subside on cessation of exposure. Commenting on cases 1, 2, and 3, Doig [5] suggested that disability might not be due entirely to iron oxide dusts but perhaps to inhalation of fumes arising from the coatings of the electrodes, which may contain noxious material.

According to Carnahan,[6] in the 1950 U. S. census there were about 276,000 persons in the United States engaged in electric arc welding, almost 10,000 of whom were women. The incidence of serious siderosis in welders is low, but it does exist. Clinical and physiological studies as well as histological examinations of pulmonary tissues in suspected cases may clarify the problem. The question of disability is important not only from the viewpoint of the patient but from the standpoint of occupational diseases.

SUMMARY

The clinical and roentgenologic findings in seven welders with respiratory disorders are described. In three the symptoms were sufficiently serious to necessitate a change of occupation. Biopsy of the pulmonary tissues and studies of pulmonary function may aid the study of this condition.

2038 Locust St.

[4] Doig, A. T., and Duguid, L. N.: The Health of Welders, London, H. M. Stationery Office, 1951.

[5] Doig, A. T.: Personal communication to the author.

[6] Carnahan, W. J.: Statistical Research Dept., Philadelphia Tuberculosis and Health Association.

INTERDEPENDENCE OF THE MEDICAL PROFESSION AND THE PHARMACEUTICAL INDUSTRY

Elmer L. Sevringhaus, M.D., Nutley, N. J.

Let us first admit two obvious facts: the physician depends on pharmaceutical manufacturers to produce useful and dependable drugs, and the manufacturers depend on physicians to prescribe and use drugs whenever a therapeutic advantage may be anticipated. Implicit in these statements is a surprising variety of topics for discussion.

Let us turn back to the year 1724. I choose this date because it appears on the title page of a small volume I cherish, entitled "Mr. Boyle's Receipts." The same John Boyle, whose statement of the interrelationship between pressure and volume of gases is the familiar Boyle's Law, was a therapeutically minded chemist. He assembled numerous directions for preparing remedies and then solicited trials of their efficacy by the physicians of his day. Remedies that gained sufficient approval were published in the volume referred to above. Following are a few examples of what the physician could expect from his local pharmaceutical manufacturer in 1724.

> LXII. *An uncommon, but try'd Remedy for* Cholicks *(without much matter) and good in Fits of the Mother.*—Take good Ginger dry, and instead of powdering it, cut it into as thin Slices as you easily can: With these fill a Tobacco-Pipe, and take the Smoak as you would that of Tobacco. Do this twice, thrice, or 4 Times a day, but especially at Bed-time, and in the Morning.
>
> LXIII. *An excellent Medicine for* Convulsive Cholicks.—Take of the Volatile Salt of Pidgeons Dung 2 or 3 Grains, or somewhat more (not exceeding 5 or 6 in all) mix these with a Scruple or half a Dram of the fame Dung crude, but well and slowly dry'd, and finely powder'd. Give this Mixture for 1 Dose in some Spoonfuls of any convenient Vehicle.
>
> CXIII. *An uncommon, but experienc'd Remedy for* Dysenterical Fluxes.—Take the Bone of the Thigh of a hang'd Man (perhaps another may serve, but this was still made Use of) calcine it to whiteness, and having purg'd the Patient with an Antimonial Medicine, give him 1 Dram of this white Powder for 1 Dose, in some good Cordial, whether Conserve or Liquor.
>
> CXLI. *An experienc'd Medicine for the Pains of the* Hæmorrhoids.—Take the Sole of an Old Shoe, worn by some Man that walks much, cut it in Pieces, and burn it, not to white or grey Ashes, but to a fryable and tender Coal; reduce this to impalpable Powder, and then with a sufficient quantity of unsalted Lard, make it into an Unguent.

A century later a chemical discovery was made that led ultimately to replacement of the human-bone, shoe leather, pigeon's dung, and even the ginger by synthetic chemicals. The discovery by Wöhler, in 1828, of the synthesis of urea from inorganic materials was the initial step in the enormous development of organic chemical synthesis. No longer do we use natural oil of wintergreen; we prescribe one of a number of synthetic derivatives of salicylic acid. For treatment of gonorrhea we may choose between synthetic sulfonamides or penicillin. Although the antibiotics may be considered products of decomposing organic matter, they are more properly thought of as pure substances manufactured by skillfully guided biological processes. The skillful supervision of these processes and the subsequent purification that makes the antibiotics so dependably useful in therapy are among the facilities that modern pharmaceutical manufacturers provide. It is not necessary to enumerate further examples of the application of chemical, physical, and biological science to the manufacture of drugs. Modern

---

Dr. Sevringhaus is Director of Clinical Research for Hoffmann-LaRoche Inc., Nutley, N. J.

Read in the General Scientific Meetings at the 102nd Annual Session of the American Medical Association, New York, June 1, 1953.

drugs are identified chemical compounds, which now dominate our pharmacopoeias and compendiums of new drugs.

DEVELOPMENT OF NEW DRUGS

Where have new drugs originated? Until 30 years ago the laboratories of the universities were almost the only places where such chemical discoveries or inventions were made. Within the last three decades we have witnessed the rise of a new type of research laboratory, housed in and supported by the various and independent units of the modern pharmaceutical industry. The majority of new drugs are now coming from these industrial laboratories. We may ask why a function developed by the universities has been transferred so largely to industrial organizations.

Specialization of scientific and technical skills, although frequently deplored, has been essential to much of this development. Along with specialization there is an indispensable collaboration among chemist, pharmacologist, bacteriologist, pathologist, physicist, and engineer. But we cannot stop here. Until the products of these collaborating workers have been evaluated critically by physicians who use the chemicals as drugs to treat illness, they are not ready for general use by the medical profession. Here we find an essential role for physicians.

The last two decades have seen the development of at least two specialized services by physicians that are indispensable to the manufacturer of pharmaceuticals. The pharmacologist must determine the characteristics of biological activity of new compounds, including toxicity and undesirable actions. Without the use of laboratory animal testing the pharmaceutical industry would be impotent. This type of study, beginning with mice and rats, is never complete until human pharmacology is included. This latter step provides the first of the opportunities for the staff in clinical investigation. These physicians occasionally have hospital staff positions that enable them to make clinical observations at first hand. More often they establish arrangements for studies of new compounds with experienced physicians who have no direct connection with the pharmaceutical firm.

The medical profession in general and the public usually are not familiar with the work of physicians in the pharmaceutical industry or the special qualifications they must have. These men usually are qualified in clinical medicine and in addition have a background in clinical research. Such training becomes of greater value as experience is gained in the special kind of clinical investigation required in the drug industry. These men bridge the gap between the laboratory and the clinic and must be capable of evaluating animal results with a new compound in terms of its first human trial. The first human application is often accomplished under the personal supervision of the physician in industry. Thereafter, promising compounds are widely placed with other clinical investigators to be tested further before general use of them can be recommended. Obviously, years of contact with the medical profession are necessary to build up clinical connections of such quantity and quality that adequate evaluation of new drugs can be completed without delay. The qualifications for men who occupy posts in clinical research in the pharmaceutical industry are: a doctor's degree in medicine; internship and residency; clinical experience; research training, preclinical or clinical; a high standard of scientific ethics; an imaginative concept of drug therapy; ability to write and to speak; liking for people and travel; and willingness to consider opinions of others.

On these physicians rest the varied responsibilities concerning experimentation on human beings. An extensive discussion of this problem was recently published in *Science*.[1] I need not take time to stress the obvious features of safety of the patient, correct determination of dose, and a follow-up for cumulative or chronic effects as well as for immediate results from use of a new drug. Attention should be directed to a more elusive question, that of the adequacy of evidence upon which to establish the efficacy of any new therapy.

QUALIFICATIONS FOR APPROVAL

The intense competition among pharmaceutical manufacturers makes it certain that ultimately only the superior products will be prescribed by physicians. But much time and valuable advantage to health may be lost if use in practical therapy must achieve these ends. Consequently there is rapidly growing emphasis on objective means for diagnosis and on estimation of improvement. Since both of these methods are often difficult to carry out in clinical medicine, two other devices are invoked: statistical treatment of data from observations on many patients who receive a new drug and the "blind test." This latter means that neither physician nor patient knows when the drug in question is being given or when an accepted drug or an inactive tablet has been substituted for comparison. It is obvious that safe and competent planning of such clinical research is of vital importance to both manufacturers and physicians.

The need for these rigidly controlled studies has become increasingly evident as we have progressed from producing drugs that are the traditional "specifics" to those that alleviate symptoms or modify the course of disease without effecting a cure. To the psychologist or psychiatrist this need for controls is logical. But to the physician, whose therapy is supposedly directed mainly toward objective changes, we must continually put the question, "How sure are you that the symptomatic response was caused by the drug and was not merely a coincidence?" This type of question is not popular with most physicians, but unless we continue to ask it we shall repeat the error of misplacing our faith in worthless remedies. Every experienced physician realizes how pain may be increased or abated, even brought about or abolished, at times, by changes of mood or attention. Does this make pain any less real? Not to the sufferer. We must recognize the fact that pain is a subjective phenomenon. No one has been able to measure pain itself. But by use of "blind tests" involving new drugs, accepted drugs, and completely inactive substitutes, and with statistical study of the results, dependable conclusions can be drawn. These may include the type of pain relieved, the probable usefulness of a new compound, and the recommended dosage. "Blind testing" must also be relied on for the numerous remedies proposed for relief of all types of functional disorders.

---

[1] Shimkin, M. B.; Guttentag, O. E.; Kidd, A. M., and Johnson, W. H.: The Problem of Experimentation on Human Beings, Science **117**:205-215 (Feb. 27) 1953.

Physicians who use new drugs with critical eyes can help determine a great variety of unexpected or, sometimes, untoward reactions. Occasionally a few such phenomena can be predicted on the basis of studies made on laboratory animals. The pharmaceutical manufacturer depends on physicians using new drugs to report all results observed, whether good, bad, or merely nuisance phenomena. Physicians too often hesitate to report any but successful experiences with a new compound; however, unfavorable but factual reports are not considered complaints. Prompt, accurate information on untoward or unnecessary results is equally as important as tabulations of benefits derived from a new drug. Physicians owe a duty to each other as well as to the manufacturer to look for and report all the clinical phenomena that follow use of any new type of treatment. Large pharmaceutical firms maintain staffs of physicians and assistants whose time is devoted largely to correspondence with other physicians on the innumerable questions that arise during therapy, whether with new or old drugs.

After the pharmaceutical manufacturer has assembled evidence on several features of a new drug, he may formally propose to the United States Food and Drug Administration that the drug be placed on sale. Prior to favorable action by the officers of this agency the new preparation may be distributed only to investigators whom the manufacturer lists as competent to study the effects of the drug in patients. Evidence that must be submitted to the Food and Drug Administration includes data on chemical composition, procedures used in manufacture, methods for assay as to potency and purity, data from studies in laboratory animals showing activity and toxicity of the drug, data from clinical trials demonstrating safety of the proposed dosage, evidence that the drug has least probable therapeutic value, and a statement of the claims to be made in labeling and in promotional literature.

Sound, prompt judgment on all these matters requires a large professional staff of high quality. Many men in the pharmaceutical industry feel an urgent need for greater funds to enable the Food and Drug Administration to train professional personnel. The activity of this agency is our most uniform guarantee of standards of purity, accuracy, and safety. This governmental agency is not charged with verifying all data and claims made. The Administration may inspect laboratories and plants, interview investigators, and make such laboratory examinations of the drug as judgment directs and facilities permit. It was clearly not the intention of Congress, which created this organization in 1938, that the medical officers of the Food and Drug Administration make clinical studies to determine either the safety or efficacy of new drugs. It should be noted that the Administration never endorses a new drug; it merely permits the manufacturer to proceed with sale of the drug under legally standardized methods of labeling. Approval must be gained directly from the physicians to whom the manufacturer presents his product.

Manufacturers rely on four chief approaches to the attention of the prescribing physician: journal articles, journal advertising, direct mail advertising, and the calls by "detail men." It is apparent that a large expenditure of thought and money is involved. Factors that have compelled producers to use such extensive promotional efforts are the number of new drugs, rapid evolution of medical practice to include objective methods of diagnosis, increase in specialization, and the competition inherent in our free enterprise system. With such a complicated situation no single method can be expected to carry the news of a new drug to all physicians. The manufacturer depends on the physician's professional desire to keep well informed. Each physician must choose the channels of communication within the profession to which he can give a bit of his precious time and attention. Unless this contact between the producer and prescriber is made, a new drug remains merely a new chemical on the shelf.

The members of the medical profession have provided a most important agency for discrimination and education in the matter of new drugs. The American Medical Association maintains a standing Council on Pharmacy and Chemistry. The members are pioneers in the effort to have approval accorded to drugs only when the evidence is adequate to convince men who are scientifically critical. This body serves without compensation at considerable expenditure of time and thought. Their contribution is another example of the noblesse oblige of which our profession is proud. Although at times manufacturers may experience delays or adverse decisions of the Council on Pharmacy and Chemistry, no one desires to discontinue this function of the American Medical Association. On the contrary, we cherish the right of a nongovernmental and extralegal group of physicians to make public their judgments about the products of pharmaceutical industry. The Council has been an important factor in the progress of American drug production.

EDUCATIONAL AND RESEARCH NEEDS

Another problem that is a mutual concern of the physician and the producer of drugs is the status of the educational process that provides physicians for our country's needs. How shall we provide clinical investigators we all demand? How can we augment our supply of trained pharmacologists? We also need chemists, engineers, accountants, executives, lawyers, writers, and all sorts of specially trained men.

Furthermore, let us admit frankly that were we to depend solely on the productivity of men in applied sciences and technology for the invention of new drugs, our progress would soon falter. The intimate although unpredictable dependence of these workers in the chemical and biological laboratories of industry on the fundamental contributions in physics, chemistry, biology and mathematics must not be overlooked. From even the point of view of the practicing physician or the producer of drugs we must regard all search for truth as worthy of our support. For all its man-made compartments, knowledge of truth admits no sharp boundaries between the disciplines that comprise a real university. This need for educational and research facilities in our universities is not peculiar to pharmaceutical industry or to medical science. It is fundamental to our evolving culture.

We must expect that the cost of such education and research will be borne not by a small segment of our people or our industries but by all of us. In this connection it may be noted, for example, that food manufacturers have reported sales 50 times as great as those of drug manufacturers in the United States. Food science and technology and many other industries also require research and technically trained personnel. Instead of special levies on specific industrial groups, educational funds are increasingly being provided by taxes, to which all industry contributes so largely.

On every hand one hears the suggestion that the pharmaceutical industry make larger contributions to medical education. I do not know whether the contributions now being made are adequate or fair; however, certain facts may be significant. Reports from the larger firms indicate that they are spending 5 to 6% of current income on research. The data further indicate that expenditures for research by producers of industrial chemicals are much smaller. Research funds in the pharmaceutical industry far exceed dividends to stockholders. This 5 or 6% for research is not considered a gift; it is an investment to provide future production. Although the major share of this money must provide for research in the manufacturers' laboratories, a portion is being used to meet the cost of research in universities and hospitals. Usually these grants provide for special expenses incurred by clinical investigators who accept the responsibility for studying a new drug. It may be noted that at present most such studies are not made conditional on grants by industry. When extraordinary expenditures are involved, of course, the manufacturer expects to meet the costs.

But the universities and larger hospitals are asking also for undesignated grants, funds to be applied to research at the discretion of the staff and not of the donor. We who direct clinical research and maintain extensive contacts with the medical schools and hospitals are keenly aware of the urgent need for such funds. But how far can the pharmaceutical industry go in meeting the need? A recent proposal envisages establishment in each medical school of a chair in clinical pharmacology. To provide the stipends for a trained investigator and for a staff to render his efforts effective an annual budget of $15,000 is requested. The plan and the objectives are not only reasonable but are urgently needed. We now have 72 medical schools in the United States. Can we expect to provide $15,000 chairs of clinical pharmacology in each of the 72? If not, who shall decide which schools shall have them?

Suggestions have been made that this type of support be provided by the trade organizations of pharmaceutical industries. Again certain facts are of importance. The U. S. Food and Drug Administration reports over 1,300 manufacturers of drugs that enter interstate commerce. But of these not more than 30 appear to be units with income large enough to make possible significant contributions to a program supporting research. These manufacturers are engaged in a competitive enterprise; thus if we are to have 72 chairs at $15,000 each, who shall determine the "voluntary" contribution of each firm? And if by some miracle of wisdom and good fortune this financial puzzle should be solved at once, which chair in the medical schools would be the next candidate for such annual support?

One method for meeting the need in clinical research and testing of new remedies has been suggested by those who are enthusiastic supporters of governmental activity. In recent years a magnificent and tremendous expansion of the facilities of the National Institutes of Health at Bethesda, Md., has been undertaken. This year the elaborate hospital, equipped both for patient care and for a great variety of laboratory studies, will be opened. An impressive group of the country's able investigators is being assembled to pursue studies extending from embryology to gerontology and pathology. Why not add clinical studies of proposed new drugs to the tasks assigned to the appropriate staff members? Obviously any manufacturer would gladly accept the opportunity to have his new drugs studied here. But the magnitude of the problem of examining new drugs precludes any possible adequate handling by even the imposing and growing National Institutes of Health. Furthermore, many feel that it is out of order to assign such functions to the government exclusively or even predominantly. These functions have traditionally been a part of free and competitive enterprise on the part of the manufacturers and of individual and independent judgment on the part of physicians. Assignment of clinical research to a government agency would remove the testing process far from the grass-roots of medicine.

These problems are neither simple nor insoluble. They are of great importance to physicians and pharmaceutical manufacturers alike. As we recognize the mutual interests of these two groups it is hoped that we may explore more actively the paths for extended travel. Our goals are fundamentally the same: the best treatment for patients.

Roche Park.

Emergency Tracheotomy.—An emergency tracheotomy is indicated for severe respiratory obstruction when facilities for intubation for the relief of the obstruction are not immediately available. . . . In order for the emergency tracheotomy to be successful an airway must be established beyond the respiratory obstruction which is producing suffocation, and the opening must be kept patent until respirations are re-established. . . . The physician should recognize at a glance the symptoms of marked obstructive dyspnea, that is, the ashen gray color or cyanosis, the labored, stridulous breathing and the retraction of the suprasternal notch and the supraclavicular fossa. The physician must realize that the obstruction will be fatal in a few minutes and therefore he must act immediately. . . . The patient is placed on his back with a pillow or pad under the shoulders and the neck extended. The thyroid notch and the ring of the cricoid are easily located by palpation. The thumb, second and third fingers of the left hand are arched over the larynx, and the soft tissues of the neck below the larynx are pressed backward on each side of the trachea, tightening the skin over the trachea below the cricoid ring. A bold, deep incision is made longitudinally in the midline from the cricoid ring downward, quickly cutting through all the tissues, exposing the tracheal rings. Should there be any difficulty in locating the midline of the trachea in the pool of blood, it can be palpated by the index finger. The incision is carried through the tracheal ring, preferably below the first ring. The tracheal incision is held open by forceps, knife handle or retractor of any type available to produce a free airway. The patient is turned on his side so that the blood will not run into the tracheal opening, and a tracheal cannula is procured. Artificial respiration is given and oxygen administered, if available, until the normal respiratory cycle is resumed.—W. B. Hoover, M.D., Emergency Tracheotomy, *Surgical Clinics of North America,* June, 1953.

CLINICAL NOTES

RUPTURE OF ABDOMINAL WALL THROUGH STRIA DISTENSA DURING CORTISONE THERAPY

S. H. Lawrence, M.D.
David Salkin, M.D.
Joseph A. Schwartz, M.D.
and
Harry C. Fortner, M.D., San Fernando, Calif.

Striae, or lineae cutis distensae, are band-like lesions associated with stretching of the skin. Although they occur oftenest during pregnancy, they are also found in other conditions, such as ascites. This is a report on a tuberculous patient treated with pneumoperitoneum who later had nephrosis, massive ascites, and striae. While he was being treated with corticotropin and cortisone, the striae became enormous, and one of them ruptured spontaneously, forming a peritoneocutaneous fistula. This case is reported because a survey of the literature fails to reveal records of any similar ruptures of the abdominal wall and because of the possible role of corticotropin and cortisone.

REPORT OF A CASE

A 27-year-old white man became ill in January, 1949, with productive cough and malaise. After a series of hemoptysic episodes in June, 1949, he was examined and found to have Mycobacterium tuberculosis in his sputum, and bilateral apical infiltrations seen on a roentgenogram. In July, 1949, the patient was admitted to a county hospital where pneumoperitoneum was initiated, and he was given streptomycin, 2 gm. weekly intramuscularly. In January, 1950, he was transferred to a Veterans Administration hospital, where he remained until Oct. 19, 1951. During this period pneumoperitoneum was continued, and he received courses of streptomycin, *p*-aminosalicylic acid, and amithiozone (Tibione). He received a total of 92 pneumoperitoneum refills. In January, 1951, albuminuria was noted. Peritoneal fluid was first noted fluoroscopically on Oct. 12, 1951, although it may have been present in smaller amounts for some months. Three days later a paracentesis was done, and 1,500 cc. of yellow, opalescent fluid was aspirated. The patient was transferred to the San Fernando Veterans Administration Hospital on Oct. 19, 1951.

On admission he appeared acutely ill and much older than his age because of numerous facial wrinkles. His skin generally was atrophic and showed patches of brownish pigment, especially around the lips. The abdomen was markedly distended with ascites, and reddish striae were present; many well-healed needle scars were seen on the left side where pneumoperitoneum had been done. The blood pressure was 100/80 mm. Hg.

Laboratory Findings.—The urine had a specific gravity of 1.025, 2+ albumin, and contained both red and white blood cells. The red blood cell count was 4,500,000 per cubic millimeter, hemoglobin level 12.3 gm. per 100 cc., and hematocrit 35%. The white blood cell count was 15,000 per cubic millimeter, with 70% neutrophils, 27% lymphocytes, 2% eosinophils, and 1% monocytes. Blood urea nitrogen was 4 mg. per 100 cc., total protein 2.9 gm. per 100 cc., albumin 0.9 gm. per 100 cc., and globulin 2 gm. per 100 cc. The sputum contained Myco. tuberculosis, and the chest roentgenogram showed extensive bilateral apical infiltrations, with multilocular cavitation on the left side. A Thorn test with corticotropin was normal.

Course.—Shortly after the patient was admitted, edema of the feet and scrotum developed. He was given a low-sodium diet and hydrogen-ion exchange resins, but there was no improvement. The abdomen showed progressive enlargement and tension. The striae became wide and measured up to 40 mm. in width. A paracentesis done on Dec. 13, 1951, in the lower left quadrant yielded 7,000 cc. of a greenish, opalescent fluid. Because he showed the nephrotic syndrome, 40 mg. of corticotropin was given daily. After 26 days no beneficial effect was noted. On Jan. 8, 1952, corticotropin therapy was discontinued, and 12.5 mg. of cortisone was given daily. On Dec. 31, 1951, another aspiration had yielded 7,500 cc. of fluid.

At this time the brown pigmentation of the abdominal skin increased, and the striae became more numerous and wider, some measuring 60 mm. in width. The edges had a purple cast, and the central portions resembled fine, white tissue paper. A necrotic area developed over the coccyx, and several other pressure areas became reddened and thickened. On Jan. 21, 1952, a small, 4 mm., irregular longitudinal tear occurred in the center of a wide stria in the lower right quadrant of the abdomen. Ascitic fluid drained through the ostium, and it was necessary to keep the draining area heavily padded. The patient died on Jan. 28, 1952.

Autopsy Findings.—The body was that of an adult, emaciated, white man with an increase of brownish pigment over the entire body and edema of the feet and ankles. The skin over the abdomen had numerous wide striae measuring 60 mm. in width on the right side of the abdomen. There was a denuded area 20 mm. in diameter covered with gray exudate and containing a central 4 mm. sinus opening that led into the peritoneal cavity. The anterior abdominal wall was edematous, and the muscles were very thin. The abdominal cavity contained 6 liters of yellow fluid, and visceral and parietal layers of peritoneum had whitish, dull, thickened patches.

Large apical cavities and numerous, scattered caseous foci were found in both lung fields. The heart weighed 245 gm. and was essentially normal; the coronary vessels were elastic and had no plaques. There were only a few small plaques in the aorta. The liver weighed 1,100 gm. and was otherwise normal. The spleen weighed 230 gm., was firm, and gave a positive iodine-sulfuric acid test for amyloid. The gallbladder and pancreas were normal. The right and left adrenal glands were enlarged and weighed 11 gm. and 10.4 gm. respectively; the zones were distinct. There were numerous small ulcerations in the terminal ileum, the cecum, and the ascending colon. The right kidney weighed 220 gm. and was located normally. The left kidney weighed the same but was located below the bifurcation of the abdominal aorta at the level of the fourth lumbar vertebra. The kidney was rotated so that the ureter faced anteriorly. On section, both kidneys had a widened cortex with punctate yellow foci and gave a positive amyloid test. No abnormalities were found in the urinary bladder, testes, prostate, thyroid, brain, or pituitary gland.

Microscopic examination revealed many caseous areas with cavitation in the lungs but only a few giant cells; the pulmonary artery had slight medial calcification. Caseation was present in the mediastinal lymph nodes. The intestinal ulcers contained caseation without giant cells. The liver contained numerous minute tubercles and a small amount of amyloid subintimally in the vessels. There were heavy amyloid and brown pigmented deposits in the spleen. The kidneys had intercapillary amyloid deposits in nearly all the glomerules; vacuolar changes had occurred in the proximal tubules, which stained poorly. The distal tubules were dilated, and amyloid deposits were present between them. The adrenal glands contained diffuse amyloid throughout, especially in the cortex, but least in the zona glomerulosa. The brain was slightly edematous. The pituitary and thyroid glands were normal. There was intracellular and extracellular brown pigment in the bone marrow.

From the San Fernando Veterans Administration Hospital and the departments of medicine and infectious diseases, School of Medicine, University of California at Los Angeles.

The chief pathological diagnoses were: (1) pulmonary tuberculosis with caseation and cavitation; (2) tuberculous ulcerative enterocolitis; (3) amyloid disease of the kidneys, adrenals, and spleen; (4) nephrosis due to amyloidosis; (5) anomalous location of left kidney; (6) ascites; and (7) abdominal striae distensae with sinus tract formation in the lower right quadrant.

COMMENT

A review of the literature reveals that stria formation is more complex than is ordinarily supposed, and much remains to be discovered of its etiology and pathogenesis. Striae have been described in a large variety of conditions: (1) pregnancy; (2) distention caused by ascites, large abdominal tumors, rapid gain of weight, rapid increase in growth; (3) infections such as typhoid, typhus, leprosy, syphilis, and meningitis, especially in children and adolescents; (4) endocrine disorders in puberty, Cushing's syndrome, and pituitary and adrenal tumors; and (5) miscellaneous conditions, such as spondylitis deformans and certain nervous system diseases.

Striae occur perpendicularly to the lines of maximal tension. On the abdomen they cut across Langer's lines; on a limb they are transverse during longitudinal growth, and are longitudinal if the growth is chiefly circumferential. Pathologically, striae show rupture and retraction of the fibroelastic bundles of the corium, thus revealing the underlying vascular plexuses and producing a purplish color; in the later stages, the vessels are atrophied, and the striae appear white and silvery.

The pathogenesis of stria formation is not clear.[1] Since distention is present in practically all cases, it is believed that stretching of the skin is the primary cause, but apparently constitutional, hormonal, toxic, nutritional, and neurotrophic factors are also important. The degree of stria development in pregnancy varies with respect to race and individual body structure.[2] They also occur in conditions with little skin tension and are relatively rare in ascites and large abdominal tumors. Striae are also seen in nonpregnant women.[3] They commonly occur in adolescence, are consistently present in Cushing's syndrome, and develop in many infections. These secondary factors apparently further weaken the elastic and collagenous fibers of the skin and make them more vulnerable to damage by the pressure of distention.

Corticotropin and cortisone probably play an important role in stria formation occurring in Cushing's syndrome, and they (or similar hormones) are also important in stria formation due to pregnancy, constitutional structure, and perhaps infections. Alrich, Carter, and Lehman [4] have shown that cortisone retards wound healing by decreasing the production of collagen and delaying the proliferation of fibroblasts, which results in a wound closure of low tensile strength. The fact that we were unable to find a similar case of abdominal rupture through a stria and that this patient received both corticotropin and cortisone suggests that the hormones further damage an already weakened abdominal wall, with resultant rupture through the weakened area. Corticotropin and cortisone should probably be used with caution in cases of abdominal distention with stria formation.

SUMMARY

This is the first report of a rupture of the abdominal wall through a stria cutis distensa. The factors influencing stria formation are discussed with special reference to corticotropin and cortisone.

---

[1] Wiener, K.: Skin Manifestations of Internal Disorders, St. Louis, C. V. Mosby Co., 1947.

[2] Stratz, C. H.: Ueber Schwangerschaftsstreifen, Zentralbl. f. Gynäk. 36:431, 1912. Seynsche, K.: Pregnancy Striae and Physical Constitution, Zentralbl. f. Gynäk. 50:1749, 1926. Nardelli, L.: Il probabile fattore endocrino nella patogenesi delle "Striae cutis atrophicae," Endocrinol. e. patol. constit. 1:261, 1926.

[3] Glaubersohn, S. A.: Contribution a l'étiologie des vergetures linéaires, Ann. de dermat. et syph. 8:732, 1927.

[4] Alrich, E. M.; Carter, J. P., and Lehman, E. P.: The Effect of ACTH and Cortisone on Wound Healing, Ann. Surg. 133:783, 1951.

MUMPS SKIN TEST DURING A MUMPS EPIDEMIC

Victor J. Cabasso, D.Sc., Pearl River, N. Y.
and
Col. Robert J. Hoagland (MC), U. S. Army

In their work "Immunity in Mumps" Enders and his associates [1] reported that persons having previously contacted mumps virus in the subclinical or clinical forms exhibited dermal hypersensitivity on intradermal inoculation of small amounts of heat-inactivated virus. These authors have found that, on the whole, this phenomenon correlated satisfactorily with a state of resistance against infection by mumps virus. They also proposed the following criteria for the interpretation of the skin reaction: an erythema of 10 mm. mean diameter or less should be considered to be a negative response; an erythema between 11 and 15 mm. in diameter should be considered a doubtful response; and an erythema over 15 mm. mean diameter should be regarded a positive reaction indicative of the resistant state. They used skin test antigens prepared from infected monkey parotid gland or from infected amniotic sacs with equally good results. Habel [2] confirmed the observations of Enders and co-workers and obtained slightly better results with chick embryo than with monkey parotid gland skin test antigens. Florman [3] used an egg-grown virus killed by formaldehyde (Formalin) and partially purified by centrifugation in study of the epidemiology of mumps in household groups such as seen in private pediatric practice in New York City. They also obtained evidence that a positive skin

---

Major Julia F. Gawarecki, Army Nurse Corps, assisted in this study, and Mrs. A. K. Lamb assisted in the preparation of the manuscript.

From Viral and Rickettsial Research, Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y., and the 130th Station Hospital, Heidelberg, Germany. Colonel Hoagland was formerly Chief, Medical Service, Station Hospital, U. S. Military Academy, West Point, N. Y.

[1] Enders, J. F.; Kane, L. W.; Cohen, S., and Levens, J. H.: Immunity in Mumps: 1. Experiments with Monkeys (Macacus mulatta): The Development of Complement-Fixing Antibody Following Infection and Experiments on Immunization by Means of Inactivated Virus and Convalescent Human Serum, J. Exper. Med. 81:93-117, 1945. Enders, J. F.; Cohen, S., and Kane, L. W.: Immunity in Mumps: 2. The Development of Complement-Fixing Antibody and Dermal Hypersensitivity in Human Beings Following Mumps, ibid. 81:119-135, 1945. Kane, L. W., and Enders, J. F.: Immunity in Mumps: 3. The Complement Fixation Test as an Aid in the Diagnosis of Mumps Meningoencephalitis, ibid. 81:137-150, 1945.

[2] Habel, K.: Cultivation of Mumps Virus in the Developing Chick Embryo and Its Application to Studies of Immunity to Mumps in Man, Pub. Health Rep. 60:201-212, 1945.

[3] Florman, A. L.; Fischer, A. E., and Moloshok, R. E.: Evaluation of the Mumps Skin Test, Pediatrics 5:469-473, 1950.

test was related to a resistant state and that a positive reaction developed several months after onset of the disease. They arrived at the conclusion that the test is useful in practice to determine susceptibility to mumps. Muntz and others [4] prepared a skin test antigen from killed egg-propagated virus and demonstrated that a hypersensitive reaction appeared in persons who had had previous contact with mumps virus.

We present here the results obtained by skin testing of persons involved in a small mumps epidemic at West Point, N. Y. Although the number of patients tested is limited, it does present enough variety to show the different situations that may be encountered by a clinician during a mumps epidemic.

TABLE 1.—*Clinical Cases of Mumps During Epidemic*

Case	Sex	Age, Yr.	Mumps History	Mumps During Epidemic; Date of Onset	Date of Skin Test	Skin Test Readings, Mm.		Remarks
						Mumps	Control	
1	M	28	None	2/26/49	2/27/49 6/ 2/49	10.0 20.0	0 1.0	Showed a marked increase of skin hypersensitivity three to four months after mumps onset.
2	F	2½	None	2/19/49	2/11/49	0	0	Brother and sister; at time of skin test, another brother had active mumps; skin test disclosed that both of these were susceptible to infection; both came down with mumps a few days later. These patients were unavailable for retesting.
3	M	4	None	2/20/49	2/11/49	0	0	
5	M	6	None	2/ 9/49	2/21/49 10/ 1/49	11.5 15.0	0 0	First tested 12 days after onset of mumps; gave a reaction considered as doubtful according to Enders' classification. Skin reaction was positive eight months after onset.
6	M	2½	None	2/26/49	2/28/49 7/ 2/49 10/ 3/49	1.5 12.0 10.0	1.5 0 1.0	Reaction to skin test was negative at time of onset; definite increase of skin sensitivity four and seven months after onset.
11	M	9½	None	4/26/49	6/30/49	13.5	10.0	Two brothers and a sister were not tested prior to onset of mumps. On 4/26/49, patient in case 11 had slight induration behind right mandible and pain when he chewed. Induration persisted, with no increase, for five days. Sixteen days later, sister (case 12) had fullblown mumps, and two days later brother (case 13) had mumps. Doubtful skin reactions were obtained on patients in cases 11 and 12 two and a half months after onset. Patient in case 13 gave weak reaction. Patients were unavailable for retesting.
12	F	3½	None	5/12/49	6/30/49	11.0	1.0	
13	M	7	None	5/14/49	6/30/49	8.2	0	
16	M	20	None	7/16/49	7/16/49 7/31/49 9/21/49	2.0 2.0 10.0	0 0 0	Skin test negative at time of onset; patient showed increased skin hypersensitivity two months later, but reading still low.
17	M	19	None	7/ 9/49	7/ 9/49 7/21/49 8/18/49	0 2.0 4.0	0 4.0 4.0	Skin test negative at time of onset. No skin sensitivity had developed two months later.
18	M	21	None	6/28/49	6/28/49 7/ 5/49 7/18/49 9/19/49	0 0 10.0 11.0	0 0 0 0	Patient in case 20 did not have parotitis but had bilateral orchitis and epididymitis with low blood cell count and normal differential. Roommate (case 19) was admitted to hospital on same day, with typical mumps parotitis. Both had been exposed about two and a half weeks previously to patient in case 18. All three presented increased skin sensitivity after onset of illness.
19	M	21	None	7/15/49	7/17/49 7/30/49 9/20/49	0 0 8.0	0 0 0	
20	M	23	None	Admitted to hospital on 7/15/49 with bilateral orchitis and epididymitis	7/17/49 7/30/49 9/17/49	0 2.0 16.0	0 0 0	

MATERIALS AND METHODS

Mumps Virus.—The strain of mumps virus used for the preparation of the skin test antigen was supplied to us by Dr. Karl Habel of the National Institutes of Health. It was propagated in our laboratory in 8-day-old embryos, and infected allantoic fluid was harvested after seven days incubation at 35 C. Normal allantoic fluid was obtained from 8-day-old eggs inoculated with sterile broth and treated in the same manner as infected eggs.

Preparation of Mumps and Control Antigens.—These antigens were prepared from infected and normal allantoic fluids, respectively. We used essentially the same procedure as that described by Enders [5]; one part of allantoic fluid was added to two parts of saline. The pH of the mixture was between 6.8 and 6.9. It was heated for 20 minutes at 65 C and centrifuged at 3,500 rpm for 30 minutes. The final concentration of the allantoic fluid was brought to 1:10 by the addition of saline containing enough phenol to give a final concentration of 0.5% of the preservative. The two antigens were then distributed in vials containing 5 cc. amounts and were tested for purity and safety.

Skin Testing.—Each person tested received intradermally, on the anterior surface of the forearm, 0.1 cc. each of the mumps and control antigens. Injections were made on the same forearm 5 to 6 cm. apart in order to avoid overlapping of reactions. Reading of largest and smallest diameters of erythema were made 24 and 48 hours after injection, and the average diameter was calculated on that basis.

RESULTS

Twenty-three persons were involved in this mumps epidemic, which extended over a period of five months. Ages ranged from 2½ to 38 years. There were 16 males and 7 females. Clinical mumps developed in 13 persons during the course of the epidemic; the other 10 were either persons who contacted others with mumps or persons who presented indurations or swellings in the postmandibular or preauricular regions that were later found to be caused by conditions other than mumps. For the sake of convenience the descriptions of all cases, as well as the results of the skin tests, have been tabulated under these different headings: (1) clinical cases of mumps during epidemic (table 1); (2) patients presenting indurations and swellings not caused by mumps

---

[4] Muntz, H. H.; Powell, H. M., and Culbertson, C. G.: Mumps Vaccine: 1. Studies on Human Volunteers, J. Lab. & Clin. Med. 34: 199-208, 1949.

[5] Enders, J. F., and Levens, J. H.: Mumps, in Diagnostic Procedures for Virus and Rickettsial Diseases, New York, American Public Health Association, 1948, pp. 160-161.

(table 2); and (3) persons with negative or positive skin test who contacted others with mumps in whom mumps did not develop (table 3).

COMMENT

There are three situations in which the clinician can secure aid from skin testing in clinical cases of apparent mumps or in persons exposed to patients with mumps. First, and probably of greatest value, is the positive skin test in a person whose clinical manifestations closely resemble mumps. As is well known to anyone with experience in general practice, pediatrics, or internal medicine, the early manifestations of mumps and the infrequent cases of mumps with mild parotid involvement do not permit easy diagnosis; therefore, when a patient with an induration behind the ramus of the mandible suggestive of mumps is skin tested, he can be released from isolation within 24 or 48 hours if the skin test is strongly positive and, thus, indicates immunity to mumps. Examples of such instances are cases 7, 21, and 23 in table 2. Although the patients in cases 7 and 23 had histories of mumps, the positive skin tests were of great help in excluding the possibility of a second infection. In case 21, on the other hand, there was no history of mumps, and, so, the positive skin test was of especially great diagnostic weight. A further diagnostic problem is presented by patients who have an obvious acute parotitis that may be caused by conditions other than mumps. Before the availability of skin testing, one of us (R. J. H.) encountered several such patients. The differential diagnosis, once calculus of Stenson's duct was excluded, was dependent on history, duration of the parotitis, and the blood cell count. If there was no leukocytosis and if a history of mumps was absent or unreliable, it would probably have been clinically impossible to make, or to disprove, a diagnosis of mumps without a skin test.

TABLE 2.—*Patients with Indurations and Swellings Not Caused by Mumps*

Case	Sex	Age, Yr.	Mumps History	Date of Skin Test	Skin Test Reading, Mm. Mumps	Skin Test Reading, Mm. Control	Remarks
7	M	21	Mumps in 1940	3/ 7/49	18.0	2.0	Induration behind the ramus of mandible did not progress like mumps. Follow-up definitely confirmed that it was not mumps. Skin test was useful in excluding mumps.
10	M	21	None	4/ 2/49	9.5	2.0	Enlarged submental lymph node developed; skin test suggested that patient might be susceptible to mumps, but the course of illness showed that it was not mumps. This patient was unavailable for retesting.
21	F	38	None	7/19/49	20.0	1.0	Skin test disclosed that patient was resistant to mumps. She had, however, a swelling behind the left mandible that lasted only two days. Clinically not mumps, leukocytosis.
22	M	21	Mumps in 1937	10/31/49	21.0	1	Gave an immune reaction, but showed an indefinite induration behind ramus of right mandible not clinically suggestive of mumps.
23	M	22	Mumps in 1942	11/17/49	12.0	0	Appeared with acute, painful, tender swelling of right submaxillary gland; opening of Stenson's duct red and swollen; blood cell count normal. Size of swelling fluctuated slightly between meals, and gritty material was expelled from duct. Diagnosis: calculus of Stenson's duct.

TABLE 3.—*Persons Exposed to Mumps in Whom Mumps Did Not Develop*

Skin Test Reaction	Case	Sex	Age, Yr.	Mumps History	Date of Skin Test	Skin Test Reading, Mm. Mumps	Skin Test Reading, Mm. Control	Remarks
Negative	8	F	7	None	3/ 8/49	5.0	0	Mother and daughter lived in small trailer with another woman whose child had mumps. They were in the same trailer during first day of disease; neither contracted mumps. One might have assumed that they were immune to mumps inasmuch as they did not become sick. Skin test at time of onset, however, disclosed that both were susceptible, and later test seemed to indicate that they were merely fortunate in not making adequate contact with the virus. This exposure and failure to develop the disease, or immunity, is an interesting side-light on the contagiousness of mumps.
					6/18/49	3.0	0	
	9	F	30	None	3/ 8/49	4.5	9.0	
					6/18/49	4.0	4.0	
Positive	4	F	36	Mumps during childhood	2/11/49	20.0	0	Skin test disclosed that this woman was resistant to mumps. She was the mother of patients in cases 2 and 3; mumps did not develop despite repeated contact with the patients.
	14	M	37	Unknown	7/21/49	17.2	2	Parents of patients in cases 11, 12, and 13. To their knowledge, they had not had mumps. Skin test, however, disclosed them to be immune, and exposure to affected children did not result in clinical disease.
	15	F	37	Unknown	7/21/49	21.0	1	

A second advantage to the clinician is the possibility of making a diagnosis of nonparotid mumps. This is illustrated by the patient in case 20; there was a change from a negative to a positive skin test over a period of time in a patient who never had parotitis but who did have mumps involvement of another organ. This is of more than academic interest because social problems involving venereal disease are eliminated; and, furthermore, the patient can consider himself immune to mumps on subsequent occasions when knowledge of such immunity will allow latitude of activity.

A third advantage is that the clinician is aided because he can perform skin tests on exposed children who are not sick, and, if the results are strongly positive, he can freely tell the parents that they need not fear the occurrence of mumps. Any practicing physician knows that such assurance may make a great difference in plans for trips, vacations, and other activities. In military service, for example, a positive skin test might make the difference in whether or not a person would be allowed to board an Army transport.

SUMMARY

A positive skin test with mumps antigen, like a positive tuberculin skin test, indicates past invasion of the body by the causative agent; however, unlike the tuberculin test, a positive mumps skin test indicates a state of resistance to mumps and, consequently, immunity to infection.

Skin testing is a simple method of determining susceptibility or resistance to mumps and allows the clinician to infer (1) that an acute disease physically resembling mumps parotitis is actually mumps if a negative skin test is obtained but is not if the result is positive; (2) that an acute disease without associated parotitis, such as acute epididymo-orchitis or acute meningitis, was caused by mumps virus if the skin test was initially negative but became positive two or three months later; (3) that persons recently exposed to mumps but shown to have positive skin tests will not contract the infection; and (4) that persons recently exposed but who show negative skin tests should be considered susceptible to mumps, and no prediction can be made as to whether they will have mumps.

INFECTIOUS MONONUCLEOSIS ASSOCIATED WITH SYMPTOMS OF ACUTE PERICARDITIS

Louis A. Soloff, M.D.
and
Jacob Zatuchni, M.D., Philadelphia

Both infectious mononucleosis and acute benign, or so-called nonspecific, idiopathic, or primary, pericarditis are disorders of unknown cause that tend to occur commonly in young persons and are often preceded by symptoms suggestive of a mild infection of the upper respiratory tract.[1] The pathological changes in infectious mononucleosis are widespread, and the clinical picture is highly variable, depending on the intensity of the localization of the pathological changes that produce symptoms and signs. The pathological changes in acute benign pericarditis are confined to the pericardium and possibly to the adjacent tissues, so that the clinical picture is fairly constant, except for variability in intensity of symptoms and signs. The diagnosis of infectious mononucleosis can, however, be firmly established by specific laboratory studies, whereas acute benign pericarditis remains a clinical concept and is an admission by the clinician of his inability to uncover a specific cause. Perhaps the increase in viral diagnostic laboratory facilities will help in the classification of this clinical entity according to specific causes. Meanwhile, it is important that every effort be made to exclude systemic or adjacent organ disease, among other known causes of pericarditis,[2] before a diagnosis of acute benign pericarditis is made. Our purpose is to report a rare instance of a patient who had the clinical picture of acute benign pericarditis that was proved to be due to infectious mononucleosis.

REPORT OF A CASE

The patient was referred by Dr. Philip Clair to one of us (L. A. S.) and was first seen on Nov. 12, 1952. He had severe, agonizing pain located primarily substernally and radiating across the anterior chest wall upward toward both shoulders and downward to the epigastric region. His family physician had made a diagnosis of acute benign pericarditis but wanted to exclude the possibility of myocardial infarction because of the severity of the pain and its duration and recurrence.

The patient was a white boy, 17 years old, who had regarded himself to be in good health, until Nov. 11, 1952, when he awoke feeling unwell. He had no specific complaints, however, and went to his place of work, where he is a cashier outside school hours. Later in the same day, he felt feverish and had vague pains across the anterior chest wall, which radiated toward both shoulders. He applied an ointment to these regions for relief. That evening, the pain became agonizing and the family physician was called. The physician found it necessary to give him morphine sulfate for relief of pain, after which he fell asleep. He was awakened at 2 a.m. by similar pain across the anterior chest wall, which radiated to the epigastrium and was accompanied by nausea. Again, an injection of morphine sulfate had to be given for relief of pain, and the patient fell asleep. On the following morning, he awoke with a recurrence of pain, nausea, and a sensation of chilliness.

Physical examination on Nov. 12 revealed a normally developed, normally nourished young man who complained of pain in the chest. He felt slightly short of breath. Deep breathing and change of position increased the intensity of the pain. Except for slight tachycardia, the heart seemed normal on physical examination. An electrocardiogram confirmed Dr. Clair's diagnosis of acute pericarditis. General physical examination revealed, however, small lymph nodes in the cervical, axillary, and inguinal regions. Although the presence of these lymph nodes in the cervical and inguinal regions did not necessarily signify active disease, it was thought that the axillary lymph nodes were larger than would be expected normally. For this reason, the possibility of a lymphomatous disorder, with secondary pericardial involvement, was considered.

The patient was admitted to Temple University Hospital Nov. 15, 1952, for study. In the hospital, the results of physical examination were unchanged, except for the occasional occurrence of premature beats and accentuation of the pulmonic second sound. Fluoroscopic and roentgenographic study of the chest revealed a normal cardiac silhouette, normal lung fields, and normal excursion of the diaphragm. An electrocardiogram made Nov. 17 showed the pattern of subsiding pericarditis. The venous pressure was 150 mm. H_2O, the dehydrocholic acid (Decholin) time was 14 seconds, and the ether time was 6 seconds. The hemoglobin level was 15 gm. per 100 cc., the hematocrit 46%, the leukocyte count 13,700 per cubic millimeter, and the erythrocyte sedimentation rate 11 mm. in 1 hour (Wintrobe, corrected). A blood smear showed 29% neutrophils, 53% lymphocytes, 5% atypical lymphocytes, 1% prolymphocytes, 8% monocytes, and 4% disintegrated cells. Serologic tests for syphilis gave negative results. The heterophil antibody titer was 1:1792 on Nov. 19 and 1:896 on Nov. 21. Results of urinalysis were normal. On Nov. 20, examination of the blood revealed 12,300 leukocytes per cubic millimeter, with 22% neutrophils, 55% lymphocytes, 11% atypical lymphocytes, 1% prolymphocytes, 4% monocytes, 1% basophils, and 6% disintegrated cells. An electrocardiogram made Nov. 20 showed an upper nodal rhythm. The P vector was directed −90 degrees anteriorly. The P-R interval was 0.1 second.

For the first three days of hospitalization, the patient's temperature was elevated variably to as high as 101.8 F, but by the fourth day it had returned to normal. The patient received oxytetracycline, 500 mg. every 6 hours. The symptoms disappeared shortly after hospitalization, and the patient was discharged Nov. 21, 1952.

On Nov. 26, results of blood studies were as follows: hemoglobin level, 15 gm. per 100 cc.; erythrocyte count, 5,400,000 per cubic millimeter; leukocyte count, 9,000 per cubic millimeter, with 32% neutrophils, 59% lymphocytes (many abnormal), 7% monocytes, and 2% basophils, and heterophil

---

From the Department of Medicine, Temple University School of Medicine, and Temple University Hospital.

Because of space limitations, the bibliographic references have been omitted from THE JOURNAL and will appear in the authors' reprints.

antibody titer, 1:224. Repeated electrocardiograms showed normal sinus rhythm and sequential changes in the ST-T portion of the electrocardiogram consistent with a subsiding pericarditis. The last electrocardiogram, made April 6, 1953, showed a normal sinus rhythm and a decreased voltage of the T waves. At present, results of laboratory studies are negative, and the patient is well and is attending school and working after school.

COMMENT

If the lymphadenopathy had not been discovered, this young man would have been regarded as having had acute nonspecific or idiopathic pericarditis. It is possible for the diagnosis of infectious mononucleosis to be missed also because the leukocyte count in the early stages of the illness is not characteristic and because there is no significant rise in sheep cell agglutinin titers until long after the onset of the disease.[3]

Cardiac involvement in infectious mononucleosis is usually found accidentally during a routine electrocardiographic examination. The literature has been reviewed recently by Leibowitz.[4] Some workers have reported electrocardiographic abnormalities in as many as 41% of persons with infectious mononucleosis.[5] Most commonly, the abnormalities consist in minor changes in the amplitude of the T waves, as may be seen in any infection. The occurrence of premature beats, prolongation of the P-R interval, and even second degree heart block have been reported as well as alterations in the ST-T portion of the electrocardiogram.[6] In almost all instances, clinical symptoms due to cardiac involvement are absent. Occasionally, the occurrence of a systolic murmur, which is in no way different from the systolic murmur frequently found in febrile illnesses, has been reported.[7] A case has been reported of mitral stenosis following infectious mononucleosis, but the relation may be purely temporal rather than causal.[8] In the few reports of necropsies that are available, the presence of lymphocytic and monocytic cellular infiltration of the myocardium is mentioned.[9]

Pericardial involvement in infectious mononucleosis, recognized clinically or electrocardiographically, is rare. Only four instances have been reported, and two have been mentioned incidentally in the literature.[10] All the patients had either ST segment or T wave changes or both. Two had a friction rub, and two had pericardial effusion. Our patient had both clinical and electrocardiographic evidence of acute pericarditis and, also, transient upper nodal rhythm. Serial electrocardiographic tracings in our patient show the typical sequential changes of acute pericarditis. The last tracing, taken four and one-half months after the onset of illness, is still not entirely normal. Clinically, the patient is well.

SUMMARY AND CONCLUSIONS

1. A case of infectious mononucleosis is reported in which the first symptoms were those of acute pericarditis.

2. The diagnosis of acute, benign, nonspecific or idiopathic pericarditis should be made only when all known causes of acute pericarditis have been excluded by a carefully taken history, a thorough physical examination, and pertinent laboratory tests.

Broad St. at Ontario (40) (Dr. Soloff).

EXTREME HYPERGLYCEMIA AND SEVERE KETOSIS WITH SPONTANEOUS REMISSION OF DIABETES MELLITUS

Tsung O. Cheng, M.D.
Robert C. Jahraus, M.D.
and
Eugene F. Traut, M.D., Oak Park, Ill.

From time to time extreme hyperglycemia has been recorded. We wish to report on a patient who had an unusually high blood sugar but, after surviving profound and prolonged coma, apparently recovered completely from all symptoms and signs of diabetes mellitus.

REPORT OF A CASE

A 68-year-old Negro woman was admitted to the Cook County Hospital, Chicago, on July 3, 1952, in a coma. She had been well until three months previously, when she began to note unusual thirst and weakness. On the day before admission the patient had felt generally and indefinitely ill. She went to bed early that night, thinking that she might have a cold, and was found unconscious in bed the next morning. Her history previous to the three months before admission was irrelevant, and there was no known diabetes in her family.

On admission the patient appeared to have extreme ketosis. Kussmaul's breathing with an acetone odor was present. The skin was dry and florid, and the eyeballs were soft. The rectal temperature was 98.2 F. Other than generalized hyporeflexia, unconsciousness, absence of a pupillary reaction to light, and elicitation of Babinski signs, there were no abnormal neurological signs and, in particular, no focal signs of a neurological lesion. The blood pressure was 110/80 mm. Hg, and the pulse rate was 108 per minute. The leukocyte count was 14,300 per cubic millimeter. Chemical analysis of the blood revealed 1,170 mg. of sugar per 100 cc., carbon dioxide combining power 10 vol. %, nonprotein nitrogen 76 mg. per 100 cc., creatinine 5 mg. per 100 cc., sodium 141 mEq. per liter, chloride 98 mEq. per liter, and potassium 5.6 mEq. per liter. Urinalysis showed 4+ sugar and 4+ acetone. The spinal fluid was under slightly increased pressure but otherwise was normal.

The patient was given 100 units of regular insulin intravenously and 100 units subcutaneously, on admission; in addition, 850 cc. of isotonic sodium chloride solution and 150 cc. of one-sixth molar sodium lactate solution were administered simultaneously. Three hundred thousand units of procaine penicillin and 1 gm. per day of streptomycin were injected to prevent respiratory infection. Therapy during the first 24 hours is shown in the table.

Altogether, 1,425 units of regular insulin and 10,350 cc. of fluids were given within the first 24 hours of coma. The chemical and physical signs of ketosis disappeared in 24 hours, but the patient remained in a coma for five days. She received 2,000 cc. of 5% glucose in isotonic sodium chloride solution, 1,000 cc. of isotonic sodium chloride solution, 150 cc. of one-sixth molar sodium lactate solution and 4 gm. of potassium chloride daily parenterally.

The patient was fully conscious on the sixth hospital day and showed no neurological symptoms or signs. A liquid diet consisting of 300 cc. of milk every 6 hours alternately with 240 cc. of orange juice every 6 hours was given to the patient every 3 hours. On the eighth day she was given a diet yielding 120 gm. of carbohydrate, 60 gm. of protein, and 70 gm. of fat. After the first 24 hours on this regimen, the insulin dose was lowered progressively from 250 units per day to 175 units, 150 units, 100 units, 80 units, 50 units, 40 units, and 10 units per day, during a period of one week. A daily dose of 10 units of regular insulin was continued for one month, after which 5 units were given daily for a few more days. Finally no insulin was given at all. After the first 24 hours on the diet the patient had no glycosuria or hypoglycemia.

Fasting blood sugar determinations (milligrams per 100 cc.) during her hospital stay were as follows:

July 5	550
7	332
8	365
14	80
18	135

She was discharged on Aug. 21, 1952, with glycosuria and hyperglycemia controlled on a regimen of 150 gm. of carbohydrate, 80 gm. of protein, and 80 gm. of fat daily.

The patient was readmitted in November for further metabolic studies. During her second hospitalization she showed no glycosuria. Her fasting blood sugar level ranged between 100 and 110 mg. per 100 cc. of blood. An insulin tolerance test was performed with the use of 7 units of regular insulin (calculated on the basis of 0.1 unit per kilogram of body weight). The fasting blood sugar of 107 mg. per 100 cc. was reduced to 60 mg. per 100 cc. in 25 minutes by intravenous injection of 7 units of regular insulin, returning to 85 mg. per 100 cc. at the end of two hours. In a glucose tolerance test, the fasting blood sugar level of 100 mg. per 100 cc. rose to 124 mg. per 100 cc. one-half hour after the ingestion of 75 gm. of dextrose. One hour later it was 200 mg. per 100 cc. In two hours it was 158 mg. per 100 cc.; three hours after administration of the glucose it was 67 mg. per 100 cc. The patient was given a diet yielding 340 gm. of carbohydrate, 90 gm. of protein, and 100 gm. of fat for two days. There was an excretion of 0.75 gm. of glucose in the 1,230 cc. of urine representing a 24 hour excretion. A blood sample taken two hours after the breakfast while the patient was on the diet showed the blood sugar to be 110 mg. per 100 cc. Other endocrine tests revealed a normal Robinson, Power, and Kepler test for Addison's disease; excretion of 6.3 and 6.5 mg. of 17-ketosteroids per 24 hours on two successive days; basal metabolic rate −8%; and I^{131} uptake of 14%. From the standpoint of renal function, the urinalysis showed no abnormalities. The nonprotein nitrogen was 26 to 30 mg. per 100 cc. Phenolsulfonphthalein excretion was 65% within two hours after intravenous injection of the dye. The pyelogram was normal. Liver function tests yielded a negative cephalin cholesterol flocculation test and a thymol turbidity of 6 units per 100 cc. Serum cholesterol was 238 mg. per 100 cc., and total protein 7.8 gm. per 100 cc., with a normal albumin to globulin ratio. Serum amylase was 8 units per 100 cc. The gastrointestinal tract and skull were roentgenologically normal.

Therapy and Condition of Patient in First Twenty-Four Hours

	Urine		Blood Sugar			
Time	Sugar	Acetone	(Mg. per 100 Cc.)	Fluids and Electrolytes	Insulin (Regular, in Units)	Condition
July 3						
12:00 a.m.	4+	4+	1,170	850 cc. saline	100 intravenously	Comatose
				150 cc. M/6 lactate *	100 subcutaneously	
1:00 p.m.	4+	4+	...	700 cc. saline	150 intravenously	Comatose
				300 cc. saline	150 subcutaneously	
				4 gm. potassium chloride		
2:30 p.m.	4+	4+	885	1,000 cc. 5% G/S †		
4:00 p.m.	4+	4+	...	500 cc. 5% G/S		
				150 cc. M/6 lactate		
4:30 p.m.	4+	4+	...	800 cc. saline	100 intravenously	Comatose
					100 subcutaneously	
5:30 p.m.	4+	4+	...	....	100 intravenously	
					100 subcutaneously	
7:30 p.m.	4+	4+	...	100 cc. M/6 lactate	100 intravenously	
					100 subcutaneously	
9:30 p.m.	2+	2+	...	1,000 cc. 5% G/S	....	Comatose
11:30 p.m.	1+	1+	...	1,000 cc 5% G/S	....	Comatose
				2 gm. potassium chloride		
July 4						
1:30 a.m.	2+	0	...	1,000 cc. 5% G/S	....	Restless
3:30 a.m.	2+	0	...	....	50 intravenously	Restless
					100 subcutaneously	
5:00 a.m.	4+	0	...	1,000 cc. 5% G/S	50 intravenously	Restless
					50 subcutaneously	
8:30 a.m.	3+	0	...	800 cc. 5% G/S	50 subcutaneously	Restless
				2 gm. potassium chloride		
11:30 a.m.	Trace	0	...	1,000 cc. 5% G/S	25 subcutaneously	Restless
				2 gm. potassium chloride		

* One-sixth molar sodium lactate solution.

† Glucose in isotonic sodium chloride solution.

COMMENT

An extraordinarily elevated blood sugar level is usually associated with severe diabetic symptoms. While serious, it cannot be taken as a necessarily bad omen. Joslin[1] reported 38 cases of diabetic coma that had blood sugar levels of 1,000 mg. per 100 cc. or higher, the highest being 1,620 mg. per 100 cc.; 29 recovered from coma, and 9 died. Dillon and Dyer[2] reported on 25 patients from the Philadelphia General Hospital with blood sugar levels on admission of 1,000 mg. per 100 cc. or more; 9 recovered, and 16 died. The highest blood sugar they reported was 1,850 mg. per 100 cc. in a 21-year-old girl; she recovered from the coma. Brodribb[3] reported a blood sugar level of 2,000 mg. per 100 cc. in a 67-year-old woman who recovered from coma. The blood sugar in the patient of Meyer and Salt[4] was 2,100 mg. per 100 cc. after administration of 660 units of insulin and 320 gm. of glucose. The patient recovered from the ketosis. High blood sugar values in cases terminating fatally have been reported by others; in Lawrence's case, the blood sugar value was 2,060 mg. per 100 cc.; in Argy's, 1,710 mg. per 100 cc.; in Pitfield's, 1,700 mg. per 100 cc.; and in Olmsted's, 1,400 mg. per 100 cc.

The duration of unconsciousness before treatment is begun significantly affects the prognosis. According to Joslin,[1] in a patient unconscious 8 hours (12 hours according to others) the outlook is grave. In our case the duration of unconsciousness before treatment was estimated to be at least 10 hours. The patient did not regain full consciousness for five days. We used the arbitrary standards of Dillon and Dyer[5] for determination of unconsciousness and those of Rabinowitch, Fowler, and Bensley[6] in defining coma. Such a long period of unconsciousness almost always precludes recovery, according to Rabinowitch, Fowler, and Bensley[6] and to Owens and Rockwern.[7] The age of the patient also has an important bearing on the prognosis. Joslin[1] indicated the increased danger of coma with advanced age, the highest mortality occurring in the sixth decade. Our patient was 68 years old.

---

[1] Joslin, E. P.; Root, H. F.; White, P., and Marble, A.: Treatment of Diabetes Mellitus, ed. 9, Philadelphia, Lea & Febiger, 1952.

[2] Dillon, E. S., and Dyer, W. W.: Diabetic Coma with Extreme Hyperglycemia, Am. J. M. Sc. **190**: 683-686 (Nov.) 1935.

[3] Brodribb, H. S.: Unusually High Blood Sugar in an Adult, Brit. M. J. **1**: 172 (Jan. 27) 1951.

[4] Meyer, P. C., and Salt, H. B.: Unusually High Blood Sugar in a Boy, Brit. M. J. **1**: 171 (Jan. 27) 1951.

[5] Dillon, E. S., and Dyer, W. W.: Factors Influencing the Prognosis in Diabetic Coma, Ann. Int. Med. **11**: 602-617 (Oct.) 1937.

[6] Rabinowitch, I. M.; Fowler, A. F., and Bensley, E. H.: Diabetic Coma (An Investigation of Mortalities and Report of a Severity Index for Comparative Studies), Ann. Int. Med. **12**: 1403-1428 (March) 1939.

[7] Owens, L. B., and Rockwern, S. S.: Prognosis in Diabetic Coma: Basic Importance of Mental State, Am. J. M. Sc. **198**: 252-260 (Aug.) 1939.

The patient's insulin requirements fell until finally she required none. Results of a glucose tolerance test three months after the acidosis were normal. She did not excrete more than 1 gm. of sugar in her urine in 24 hours, even on a high carbohydrate diet; she was clinically "cured" of her diabetes. She has been free of dietary restrictions for five months, enjoys pastries, ice cream, and other carbohydrate-rich foods with no resulting glycosuria or hyperglycemia, and remains in very good health. A possible future relapse, however, cannot be excluded.

Diabetes mellitus is ordinarily regarded as a permanent, constitutional defect. "Cure" (or recovery) in the sense that pneumonia or typhoid are cured is probably not applicable to diabetes mellitus. Variability, even marked, in the amount of glucose a patient can tolerate without excreting abnormal amounts of glucose in the urine (fluctuation in tolerance) is common in the course of most cases of diabetes.

According to Zubrod, Eversole, and Dana,[8] a remarkable reduction in insulin requirement is frequently found as Kimmelstiel-Wilson's syndrome progresses. Improvement in the symptoms and findings of diabetes mellitus has also been described as following limitation of diet and consequent loss of weight,[9] cirrhosis,[10] extirpation of pheochromocytoma,[11] radiation of the pituitary gland in acromegaly,[12] relief of Cushing's syndrome,[13] control of hyperthyroidism, a large intake of sodium chloride, McCarey's experiment, myxedema,[14] and senescence.[15] Patients have temporarily shown symptoms and signs of diabetes after brain injury, pancreatic disease, or hyperthyroidism. Maintenance of aglycosuria is often rewarded by a marked increase in the ability to tolerate much larger quantities of glucose-yielding food. None of these conditions account for the spontaneous disappearance of the symptoms and signs in our patient.

One of us (E. F. T.) observed a 10-year-old boy with severe, persistent, classic, uncomplicated diabetes mellitus requiring 60 units of insulin for its control who, without apparent cause, lost all the symptoms and signs of diabetes mellitus during an observation of one year. The spontaneous disappearance of the signs and symptoms of diabetes mellitus has been described before. John's first patient,[16] who had acromegaly and ultimately lost all symptoms and signs of diabetes, even to the development of a normal glucose tolerance curve, may be explained as manifesting the Houssay phenomenon[17] due to destruction of the pituitary gland by tumor. Kotte and Vonderahe[18] also described such a case.

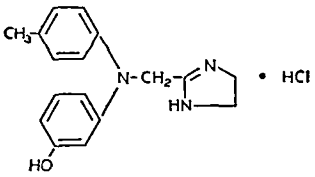
SUMMARY

A 68-year-old woman showing extreme hyperglycemia with profound ketosis and prolonged coma recovered apparently completely from the signs and symptoms of diabetes mellitus. Her diabetes eventually went into spontaneous remission. We have been unable to find a record of a similar case.

715 Lake St. (Dr. Traut).

COUNCIL ON PHARMACY AND CHEMISTRY

Phentolamine Hydrochloride.—Regitine Hydrochloride (Ciba). —$C_{17}H_{19}N_3O.HCl$.—M.W. 317.81.—2-{ [N-(*m*-Hydroxyphenyl)-*p*-toluidino]methyl }-2-imidazoline hydrochloride.—The structural formula of phentolamine hydrochloride may be represented as follows:



Actions and Uses.—Phentolamine hydrochloride, a salt of phentolamine base, is suitable for oral administration and acts as a potent adrenergic blocking agent, producing adrenolytic and sympatholytic effects.

Experimentally, phentolamine blocks the peripheral effects associated with electrical stimulation of sympathetic nerves (sympatholytic action). In comparatively small amounts, it effectively reverses the hypertensive action of injected epinephrine and suppresses the pressor response to levarterenol (adrenolytic action). This antiadrenergic action constitutes the basis for the use of phentolamine salts in the diagnosis and control of hypertension caused by pheochromocytoma and in the treatment of certain vascular diseases in which blood flow to ischemic extremities can be increased by adrenergic blockade. In certain cases the drug has been shown to be beneficial in the treatment of the sequelae of frostbite and immersion foot and has produced favorable responses in other vasospastic conditions, including Raynaud's disease and vasospasm associated with trophic ulcers of the extremities. It has also proved valuable in some patients as an antihypertensive agent, particularly in the management of hypertensive emergencies or as an adjunct in the treatment of chronic arterial hypertension.

Because of its less ready solubility and the temporary stability of aqueous solutions of phentolamine salts, phentolamine hydrochloride (in contrast to phentolamine methanesulfonate) is not suited for parenteral injection, which is necessary in the diagnosis and surgical management of pheochromocytoma. However, phentolamine hydrochloride is useful by the oral route for the control and prevention of blood pressure increases in patients with pheochromocytoma until surgical removal can be undertaken. For parenteral use and dosage of the drug, see the monograph on phentolamine methanesulfonate.

---

[8] Zubrod, C. G.; Eversole, S. L., and Dana, G. W.: Amelioration of Diabetes and Striking Rarity of Acidosis in Patients with Kimmelstiel-Wilson Lesions, New England J. Med. **245**: 518-525 (Oct. 4) 1951.

[9] Loeb, R. F.: Diabetes Mellitus, in Cecil, R. L., and others: Textbook of Medicine, ed. 8, Philadelphia, W. B. Saunders Company, 1951, p. 1627.

[10] Bernard, C.: Leçons sur le diabète et la glycogenèse animale, Paris, J. B. Baillière et fils, 1877, p. 577.

[11] Duncan, L. E., Jr.; Semans, J. H., and Howard, J. E.: Adrenal Medullary Tumor (Pheochromocytoma) and Diabetes Mellitus: Disappearance of Diabetes After Removal of Tumor, Ann. Int. Med. **20**: 815-821 (May) 1944.

[12] Balfour, W. M., and Sprague, R. G.: Symposium on Diabetes Mellitus: Association of Diabetes Mellitus and Disorders of Anterior Pituitary, Thyroid and Adrenal Cortex, Am. J. Med. **7**: 596-608 (Nov.) 1949.

[13] Sprague, R. G.; Priestley, J. T., and Dockerty, M. B.: Diabetes Mellitus Without Other Endocrine Manifestations in Case of Tumor of Adrenal Cortex, J. Clin. Endocrinol. **3**: 28-32 (Jan.) 1943.

[14] Wilder, R. M.; Foster, R. F., and Pemberton, J. deJ.: Total Thyroidectomy in Diabetes Mellitus, Proc. Staff Meet., Mayo Clin. **8**: 720-724 (Nov. 29) 1933.

[15] Debendetti, E.; Alieri, V., and Viarengo, G.: L'attenuazione spontanea del diabete dell'età matura, Minerva med. **402**: 64-69 (July 21) 1949.

[16] John, H. J.: Spontaneous Disappearance of Diabetes, J. A. M. A. **85**: 1629-1631 (Nov. 21) 1925.

[17] Houssay, B.: The Hypophysis and Metabolism, New England J. Med. **214**: 961-971 (May 14) 1936.

[18] Kotte, J. H., and Vonderahe, A. R.: The Houssay Phenomenon in Man: Report of Case of Diabetes Mellitus, Infarct of Anterior Lobe of Pituitary Body and Terminal Hypoglycemia, J. A. M. A. **114**: 950-953 (March) 1940.

Phentolamine hydrochloride is relatively nontoxic, but oral administration of the drug may produce untoward side-effects, such as tachycardia, orthostatic hypotension, nasal stuffiness, and gastrointestinal disturbances such as nausea, vomiting, and diarrhea. Because of tachycardia, most patients do not tolerate the dosage required for sustained therapy of chronic hypertensive vascular disease. Withdrawal of medication is not always necessary, and, when it is employed in other conditions, a reduction in dosage is frequently followed by a disappearance of untoward symptoms.

Dosage.—Phentolamine hydrochloride is administered orally. The usual adult dose is 50 mg. four to six times daily. Larger doses, as high as 100 mg., four to six times daily, may be necessary, especially in severer cases of peripheral vascular disease and hypertension. In children, the usual dosage is 25 mg. four to six times daily.

Tests and Standards.—

Physical Properties: Phentolamine hydrochloride is a white or slightly off-white, odorless, bitter powder, m.p. 238-242° (with slight decomposition). It is very slightly soluble in chloroform, and practically insoluble in acetone and ethyl acetate. The amounts that dissolve in the following solvents to form 100 ml. of solution are: 0.85 gm. in alcohol and 2 gm. in water. Aqueous solutions of phentolamine hydrochloride are unstable. The pH of the 1% solution is 4.5-5.5.

Identity Tests: Dissolve about 50 mg. of phentolamine hydrochloride in 10 ml. of water, and add 2 drops of nitric acid and 1 ml. of silver nitrate T.S.: a white precipitate forms, which is insoluble in diluted nitric acid, but soluble in a large excess of diluted ammonia solution *(presence of chloride and distinction from phentolamine methanesulfonate).*

Phentolamine trichloroacetate obtained in the chemical assay for phentolamine hydrochloride melts at 136-141°.

A 0.001% solution, prepared as described in the spectrophotometric assay for phentolamine hydrochloride, exhibits an ultraviolet absorption minimum at about 255 mμ and a maximum at about 279 mμ [specific absorbancy, E(1%,1 cm.), about 252].

Purity Tests: Suspend 1 gm. of phentolamine hydrochloride in about 15 ml. of water, filter, and make up to 23 ml. with water poured through the filter. Add 2 ml. of diluted acetic acid and run a U.S.P. heavy metals test: the amount of heavy metals does not exceed 20 ppm.

Dissolve 0.1 gm. of phentolamine hydrochloride in enough water to make 25 ml. of solution, add 1 ml. of barium chloride T.S., shake, and allow the mixture to stand for 1 min.: the turbidity does not exceed that of 0.2 ml. of 0.02 *N* sulfuric acid diluted to 25 ml. and treated in the same manner *(presence of sulfate).*

Dry about 1 gm. of phentolamine hydrochloride, accurately weighed, at 60° in a vacuum for 4 hours: the loss in weight does not exceed 0.5%.

Char about 1 gm. of phentolamine hydrochloride, accurately weighed, cool the residue, add 1 ml. of sulfuric acid, heat cautiously until evolution of sulfur trioxide ceases, ignite, cool, and weigh: the residue does not exceed 0.1%.

Assay: (Phentolamine Hydrochloride) Prepare a 0.001% solution of phentolamine hydrochloride as follows. Transfer to a 100 ml. volumetric flask 0.1 gm. of phentolamine hydrochloride, accurately weighed, fill to the mark with alcohol, and mix. Transfer to a second 100 ml. volumetric flask 10 ml. of this solution, fill to the mark with alcohol, and mix. Transfer to a third 100 ml. volumetric flask 10 ml. of this last solution, fill to the mark with alcohol, and mix. Spectrophotometrically determine the absorbancy in a 1 cm. quartz cell at 279 mμ, using alcohol as a blank. The concentration of phentolamine hydrochloride in the solution in mg./ml. = absorbancy ÷ 25.2. The amount of phentolamine hydrochloride is not less than 95.0 nor more than 105.0%.

Transfer to a 100 ml. beaker about 0.1 gm. of phentolamine hydrochloride, accurately weighed. Dissolve the powder in 15 ml. of water. Add slowly, while stirring, 20 ml. of clear 10% trichloroacetic acid, and let the beaker stand for at least 1 hour. Suction filter the precipitate through a tared sintered glass crucible, removing any precipitate which adheres to the beaker with three 5 ml. portions of 10% trichloroacetic acid. Wash the precipitate with five 2 ml. portions of water, dry the precipitate in a vacuum over phosphorus pentoxide for 4 hours, and weigh. Each gram of phentolamine trichloroacetate formed is equivalent to 0.7146 gm. of phentolamine hydrochloride. The amount of phentolamine hydrochloride is not less than 98.0 nor more than 102.0%.

Dosage Forms of Phentolamine Hydrochloride

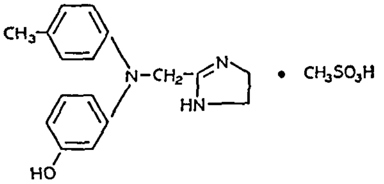
TABLETS. *Identity Tests:* Grind a number of tablets equivalent to about 0.4 gm. of phentolamine hydrochloride and triturate the powder with three 25 ml. portions of alcohol. Filter the alcohol extracts and evaporate the filtrate to dryness on a steam bath. The residue responds to the identity tests for the active ingredient in the monograph for phentolamine hydrochloride.

Assay: (Phentolamine Hydrochloride) Weigh 20 tablets and powder them. Transfer to a 100 ml. volumetric flask an amount of powder, accurately weighed, equivalent to about 0.1 gm. of phentolamine hydrochloride, add 50 ml. of alcohol, and shake the flask mechanically for 15 min. Fill to the mark with alcohol, mix, and centrifuge. Transfer to a second 100 ml. volumetric flask 10 ml. of the clear supernatant liquid, fill to the mark with alcohol, and mix. Transfer to a third 100 ml. volumetric flask 10 ml. of this last solution, fill to the mark with alcohol, and mix. Spectrophotometrically determine the absorbancy in a 1 cm. quartz cell at 279 mμ, using alcohol as a blank. The concentration of phentolamine hydrochloride in the solution in mg./ml. = absorbancy ÷ 25.2. The amount of phentolamine hydrochloride is not less than 93.0 nor more than 107.0% of the labeled amount.

Ciba Pharmaceutical Products. Inc., Summit, N. J.

Tablets Regitine Hydrochloride: 50 mg. U. S. patent 2,503,059.

Phentolamine Methanesulfonate.—Regitine Methanesulfonate (Ciba).—$C_{17}H_{19}N_3O.CH_4O_3S$.—M.W. 377.45.—2-{[N-(*m*-Hydroxyphenyl)-*p*-toluidino]methyl}-2-imidazoline methanesulfonate.—The structural formula of phentolamine methanesulfonate may be represented as follows:



Actions and Uses.—Phentolamine methanesulfonate, readily water-soluble salt of the adrenergic blocking agent phentolamine base, exhibits adrenolytic and sympatholytic effects. The methanesulfonate salt is used for parenteral injection in the diagnosis and surgical management of hypertension caused by pheochromocytoma, a tumor that characteristically gives rise to excessive circulating epinephrine and/or levarterenol (*l*-norepinephrine). Phentolamine, as the hydrochloride salt, is administered orally to control blood pressure increases in patients with pheochromocytoma until surgical removal can be undertaken. For other uses and the dosage of the orally administered hydrochloride salt, see the monograph on phentolamine hydrochloride.

Phentolamine effectively blocks the pressor activity of epinephrine and levarterenol for longer periods than does piperoxan, and in smaller amounts. Therefore, phentolamine methanesulfonate is considered more useful and less toxic than piperoxan as a diagnostic agent to exclude the presence of pheochromocytoma as a cause of paroxysmal or persistent hypertension. On the other hand, piperoxan is less likely to cause a misleading drop in blood pressure in ordinary cases of hypertension. It should, therefore, be employed as a confirmatory test when interpretation of the results is in doubt.

The use of phentolamine methanesulfonate as a diagnostic test for pheochromocytoma is based on its adrenolytic effect in producing a fall in blood pressure during a "typical" paroxysmal hypertensive episode. However, it is also indicated diagnostically in the presence of persistent chronic hypertension, especially when the hypertension is associated with a high basal metabolic rate, hyperglycemia, and tachycardia, and in sudden severe hypertension in a normotensive or hypertensive patient during anesthesia or operative procedure, and in hypertension in children or young adults, especially in the absence of severe renal disease. During the normotensive phase, that is, when the pheochromocytoma is not discharging sufficient epinephrine or levarterenol to elevate the blood pressure or to sustain an elevation, and in essential hypertension coexisting with a pheochromocytoma, repeated testing may be necessary to rule out "false negative" interpretation of a slight fall in blood pressure following administration of phentolamine.

A "false positive" drop in pressure may occur in patients with uremia and in those who have received sedatives prior to the test with phentolamine. Therefore, the test should be performed in the absence of sedation (or any anodyne) for at least 24 hours preceding. Basal blood pressure is first determined following a period of rest in the supine position and the injection of the agent is delayed after introduction of the needle to allow the hypertensive effect of needle pain to subside.

The duration of the blood pressure response to phentolamine is influenced by the route of injection. Moderate or slight tachycardia is the only undesirable side-effect of the test so far associated with intramuscular injection of the recommended dose. Given intravenously, the same dose has caused tachycardia with angina and in rare instances, weakness, dizziness, or flushing, none of which have been considered serious. The diagnostic and therapeutic use of phentolamine methanesulfonate in pheochromocytoma is considered to be relatively safe and free from alarming reactions.

Dosage.—Phentolamine methanesulfonate is employed in permanently stable, lyophilized form for preparation of a fresh aqueous solution for administration by intramuscular or intravenous injection. In solution, phentolamine salts are stable for only about six months. For adults, the intramuscular or intravenous test dose is 5 mg. in 1 cc. of distilled water for injection; in children an intramuscular dose of 3 mg. or an intravenous dose of 1 mg. is usually adequate. A typical positive response is characterized by an immediate drop in systolic and diastolic blood pressure. The maximum depressor effect is usually obtained within 2 minutes after intravenous injection and within 20 minutes after intramuscular injection. Generally, the systolic fall is approximately 60 mm. Hg, with the diastolic fall exceeding 25 mm. Hg, but the degree of response may be somewhat less in some patients. After intramuscular injection, the reduction usually persists for some 30 minutes and gradually returns to previous levels within 3 to 4 hours. After intravenous administration, the blood pressure usually returns to previous levels within 10 to 15 minutes and occasionally within 2½ minutes. Negative responses are recorded when there is no change in blood pressure, a slight or moderate rise in blood pressure, or only a slight lowering of blood pressure. The intravenous route should be employed if it is necessary to repeat the test to rule out false reactions.

In the control of blood pressure during surgical management of pheochromocytoma, the preoperative adult dose is 5 mg., intramuscularly or intravenously, one to two hours before the operation. This is repeated, if necessary, to prevent a paroxysm caused by anesthesia or emotional stress. For children, the preoperative dose is 3 mg. intramuscularly or 1 mg. intravenously. During operation, an intravenous dose of 5 mg. for adults or 1 mg. for children, repeated if necessary, may be given whenever blood pressure begins to rise as a result of stress or of manipulation of the tumor.

Tests and Standards.—

Physical Properties: Phentolamine methanesulfonate is a white, odorless, bitter powder, m.p. 175-180°. It is freely soluble in water, very slightly soluble in acetone, and practically insoluble in ethyl acetate. The amounts that dissolve in the following solvents to form 100 ml. of solution are: 6.8 gm. in alcohol and 0.15 gm. in chloroform. Phentolamine methanesulfonate is stable when protected from moisture. The pH of the 1% solution is 4.5-5.5.

Identity Tests: Heat about 50 mg. of phentolamine methanesulfonate in a small test tube with a pellet of sodium hydroxide until the mixture just melts. Cool, dissolve the melt in 2 drops of water, and add 2 drops of hydrochloric acid. Wash the walls of the test tube with 5 drops of water, wipe dry the rim of the tube, and lay over the mouth a strip of filter paper *impregnated with nickelous hydroxide (dip paper in 30% nickelous* chloride and then in 10% sodium hydroxide). Immerse the test tube in water at about 80°: the paper turns from light green to black or gray *(presence of sulfonic acid group and distinction from phentolamine hydrochloride).*

Phentolamine trichloroacetate obtained in the chemical assay for phentolamine methanesulfonate melts at 136-141°.

A 0.001% solution, prepared as described in the spectrophotometric assay for phentolamine methanesulfonate, exhibits an ultraviolet absorption minimum at about 256 mμ and a maximum at about 280 mμ [specific absorbancy, E(1%,1 cm.), about 212].

Purity Tests: Dissolve 1 gm. of phentolamine methanesulfonate in 23 ml. of water, add 2 ml. of diluted acetic acid, and run a U.S.P. heavy metals test: the amount of heavy metals does not exceed 20 ppm.

Dissolve 0.1 gm. of phentolamine methanesulfonate in enough water to *make 25 ml. of solution, add 1 ml. of barium chloride T.S., shake, and* allow the mixture to stand for 1 min.: the turbidity does not exceed that of 0.2 ml. of 0.02 *N* sulfuric acid diluted to 25 ml. and treated in the same manner *(presence of sulfate).*

Dry about 1 gm. of phentolamine methanesulfonate, accurately weighed, at 60° in a vacuum for 4 hours: the loss in weight does not exceed 0.5%.

Char about 1 gm. of phentolamine methanesulfonate, accurately weighed, cool the residue, add 1 ml. of sulfuric acid, heat cautiously until evolution of sulfur trioxide ceases, ignite, cool, and weigh: the residue does not exceed 0.1%.

Assay: (Phentolamine Methanesulfonate) Prepare a 0.001% solution of phentolamine methanesulfonate as follows. Transfer to a 100 ml. volumetric flask 0.1 gm. of phentolamine methanesulfonate, accurately weighed, fill to the mark with alcohol, and mix. Transfer to a second 100 ml. volumetric flask 10 ml. of this solution, fill to the mark with alcohol, and mix. Transfer to a third 100 ml. volumetric flask 10 ml. of this last solution, fill to the mark with alcohol, and mix. Spectrophotometrically determine the absorbancy in a 1 cm. quartz cell at 280 mμ, using alcohol as a blank. The concentration of phentolamine methanesulfonate in the solution in mg./ml. = absorbancy ÷ 21.2. The amount of phentolamine methanesulfonate is not less than 95.0 nor more than 105.0%.

Transfer to a 100 ml. beaker about 0.1 gm. of phentolamine methanesulfonate, accurately weighed. Dissolve the powder in 15 ml. of water. Add slowly, while stirring, 20 ml. of clear 10% tricholoroacetic acid, and let the beaker stand for at least 1 hour. Suction filter the precipitate of phentolamine trichloroacetate through a tared sintered glass crucible, removing any precipitate which adheres to the beaker with three 5 ml. *portions of 10% trichloroacetic acid. Wash the precipitate with five 2 ml.* portions of water, dry the precipitate in a vacuum over phosphorus pentoxide for 4 hours, and weigh. Each gram of phentolamine trichloroacetate formed is equivalent to 0.8487 gm. of phentolamine methanesulfonate. The amount of phentolamine methanesulfonate is not less than 98.0 nor more than 102.0%.

Dosage Forms of Phentolamine Methanesulfonate

POWDER. *Physical Properties:* The lyophilized powder has the same physical properties as are given for the active ingredient in the monograph for phentolamine methanesulfonate, but the powder consists of small needles that are more readily soluble.

Identity Tests: The powder responds to the identity tests for the active ingredient in the monograph for phentolamine methanesulfonate.

Assay: (Phentolamine Methanesulfonate) Transfer to a 100 ml. volumetric flask 0.1 gm. of the powder, accurately weighed, fill to the mark with alcohol, and mix. Proceed as directed in the spectrophotometric assay for phentolamine methanesulfonate in the monograph for phentolamine methanesulfonate starting with "Transfer to a second 100 ml. volumetric flask . . ." The concentration of phentolamine methanesulfonate in the solution in mg./ml. = absorbancy ÷ 21.2. The amount of phentolamine methanesulfonate is not less than 95.0 nor more than 105.0% of the labeled amount.

Ciba Pharmaceutical Products, Inc., Summit, N. J.

Lyophilized Regitine Methanesulfonate: 5 mg. ampuls. Each ampul contains 5 mg. of phentolamine methanesulfonate. Packaged with 1 cc. vial of water for injection. U. S. patent 2,503,059.

Tetracaine Hydrochloride-U.S.P. (See New and Nonofficial Remedies 1953, p. 41).

Winthrop-Stearns Inc., New York.

Solution Pontocaine Hydrochloride 0.2% with Dextrose 6% (For Saddle Block Anesthesia): 2 cc. ampuls. A hyperbaric solution containing 2 mg. of tetracaine hydrochloride in each cubic centimeter.

Solution Pontocaine Hydrochloride 0.3% with Dextrose 6% (For Spinal Anesthesia): 5 cc. ampuls. A hyperbaric solution containing 3 mg. of tetracaine hydrochloride in each cubic centimeter.

COUNCIL ON FOODS AND NUTRITION

ACCEPTED FOODS

In order to encourage the production of fruit juices containing high natural levels of vitamin C, the Council on Foods and Nutrition accepts canned tomato juice in which there is at least 17.5 mg. of ascorbic acid per 100 ml. at the time of packing.

The following product has been accepted by the Council and permission to use the seal has been granted.

JAMES R. WILSON, M.D., *Secretary.*

Aslesen Company, Minneapolis.

Banquet Table Brand Tomato Juice.

This product is vacuum packed in 7 oz., 46 oz. and #10 size containers. The vitamin C content averaged 24.0 mg. per 100 ml. for the 1952 packing season.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
535 N. DEARBORN ST. . . . . CHICAGO 10, ILL.
Editor . . . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

SURGICAL TREATMENT OF BRONCHIECTASIS

Laennec in 1819 described bronchiectasis as a clinical and pathological entity. Bronchography with the aid of iodized oil, introduced by Sicard and Forestier, added more precise knowledge of the disease in the past two decades. The condition is recognized today as a common chronic pulmonary disease, being more commonly observed than pulmonary tuberculosis. As a result of repeated attacks of bronchopneumonia, usually in childhood, chronic inflammatory changes develop in the bronchial mucosa and submucosa. These changes may lead to a state of extensive irreversible fibrosis of a segment or of an entire lobe, weakening of the bronchial wall, and stenosis of bronchi, with dilatation distal to the stenosis. Stagnation of purulent secretion, often containing anaerobic and aerobic micro-organisms, occurs in the ectatic areas distal to the stenosis. Fibrosis of parenchyma and compensatory emphysema develop.

Symptoms are those of a chronic cough, productive of purulent sputum. There may be hemoptysis, chest pain, recurrent attacks of pneumonia or of bronchopneumonia, dyspnea, chronic sepsis, and invalidism. In addition to standard roentgenograms of the chest, bronchography is essential for a definite diagnosis. Medical treatment of bronchiectasis is directed toward mechanical drainage, control of infection, and measures to improve the general health. Postural drainage is probably the most important single mechanical procedure for emptying the dependent bronchiectatic cavities of their secretions. Bronchoscopy is useful for the removal of unsuspected foreign bodies and for the diagnosis of primary bronchogenic carcinoma, which is often masked by bronchiectasis. Segmental location of the disease within the lung may also be aided by bronchoscopy. Its value in the treatment is at best palliative. Chemotherapy and antibiotics aid in the suppression of sensitive micro-organisms. Sinusitis usually develops in the course of the disease and serves to aggravate the condition by giving rise to repeated infection. It is not an etiological factor in bronchiectasis.

The survey by Perry and King[1] of 400 patients indicates the poor prognosis of patients treated medically. The irreversible lesions of bronchiectasis cannot be influenced by medical management, even though it may contribute greatly to the comfort of the patient. Chronic invalidism beginning in childhood, continuing throughout life, and characterized by mental lethargy and ineptitude, physical unfitness, and social maladjustment is the inevitable picture of any untreated or unsuccessfully treated case of bronchiectasis.

Today the consensus is that bronchiectasis can be cured only by a resection of the diseased segments of the lung. Brunn[2] in 1929 reported six one-stage lobectomies with one death. An important advance was the introduction by Churchill and Belsey[3] of the technique of segmental resection. Overholt and Langer[4] (1947) emphasized that the characteristic distribution of lesions in bronchiectasis is segmental. The removal of the segment presents no undue technical difficulties or risk. Segmental resection not only eradicates all the diseased tissue but also eliminates the necessity of sacrificing the uninvolved segments. This approach to the problem, according to Overholt and Langer, permits the accomplishment of two fundamental principles of surgery: (1) cure of the patient and (2) preservation of as much functional tissue as possible. Bronchiectasis is primarily a segmental disease and is frequently bilateral, usually involving certain pulmonary segments within the lobe rather than an entire lobe.

In 1947 Kay[5] reported 220 consecutive lobectomies with only one operative death. Ochsner and his co-workers[6] reported in 1949 on 92 operations without a single hospital fatality. Subsequent death from pulmonary disease has occurred in 3.1% of their cases. Unsatisfactory results were recorded in 4.2%. In a recent communication Storey and Laforet[7] report 100 resections performed on 92 patients. They emphasize that the great advance in the surgical therapy of bronchiectasis has been accomplished by adoption of the policy of limiting the resection to the involved segments, to the employment of individual hilar dissection, and to ligation technique. They also stress the necessity of bronchography to obtain a complete mapping of the tracheobronchial tree. In their series of patients the most frequently resected areas were the lingula of the left upper lobe, the right middle lobe, and the base segments of the lower lobe of both lungs. This appears to be the universally accepted distribution of bronchiectasis. The

---

1. Perry, K. M. A., and King, D. S.: Bronchiectasis: Study of Prognosis Based on Follow-Up of 400 Patients, Am. Rev. Tuberc. **41:** 531-548 (May) 1940.
2. Brunn, H.: Surgical Principles Underlying One-Stage Lobectomy, Arch. Surg. **18:** 490-515 (Jan.) 1929.
3. Churchill, E. D., and Belsey, R.: Segmental Pneumonectomy in Bronchiectasis: Lingula Segment of Left Upper Lobe, Ann. Surg. **109:** 481-499 (April) 1939.
4. Overholt, R. H., and Langer, L.: A New Technique for Pulmonary Segmental Resection: Its Application in the Treatment of Bronchiectasis, Surg., Gynec. & Obst. **84:** 257-268 (March) 1947.
5. Kay, E. B.; Meade, R. H. Jr., and Hughes, F. A. Jr.: Surgical Treatment of Bronchiectasis, Ann. Int. Med. **26:** 1-12 (Jan.) 1947.
6. Ochsner, A.; DeBakey, M., and DeCamp, P. T.: Bronchiectasis: Its Curative Treatment by Pulmonary Resection: An Analysis of Ninety-Six Cases, Surgery **25:** 518-532 (April) 1949.
7. Storey, C. F., and Laforet, E. G.: The Surgical Management of Bronchiectasis: A Review Based on the Analysis of 100 Consecutive Resections, U. S. Armed Forces M. J. **4:** 469-523 (April) 1953.

more localized the disease the better the expectation of complete extirpation with a curative or greatly beneficial result. The very young withstand major intrathoracic surgery remarkably well. There were two fatalities in Storey and Laforet's series of 100 resections. Of the 70 patients who were followed up for over six months or longer, the results were classified as excellent in 51 (73%), good in 12 (17%), fair in 4 (6%), and poor in 3 (4%).

Cure of bronchiectatic disease of the lung may be reasonably expected from resection, provided the disease is not too extensive, the patient is not elderly, and there exist no definite conditions contraindicating a major surgical intervention.

FOOD AND PREVENTIVE MEDICINE

The recently published paper by Conrad A. Elvehjem[1] on the importance of food in preventive medicine reveals clearly the need for applying adequate nutritional standards to all populations. Nutrition has become so important that it cannot be regarded casually; on the contrary, it must always be remembered in most, if not all, thorough diagnostic and therapeutic procedures. Today one can even speak of food therapy, since the word food embraces such a broad field, since food has been broken down into many substances, and since these substances can be applied specifically for treatment as well as for the prevention of nutritional disorders. In fact, they are often used in what at first seem to be unrelated health problems; however, further study would reveal the reasons for such therapy and at the same time would indicate the complexity and scope of modern nutritional practices.

Nutritional deficiency cannot be regarded, as was the situation some years ago, as being present only when such diseases as pellagra, beriberi, and scurvy are diagnosed. Not too long ago it was popular to speak of borderline deficiencies, but even this description seems to have outlived its usefulness. Elvehjem speaks of "conditioned deficiencies" and mentions diabetes mellitus, colitis, peptic ulcers, and anemia as health problems in which there is need to take an extra long look at the possibility of there being a deviation from the optimum nutrition. Also of special importance in this field are the diseases in which fever plays a prominent part. During fever there is an increased demand on some nutrients because of increased metabolism. At the same time, there is increased destruction of body tissues, loss of nitrogen, and perhaps a disturbance of the water balance. Of similar concern are diseases of the gastrointestinal tract, when absorption as well as utilization of nutrients must be considered. Thus one must be concerned not only with the likes and dislikes of the sick person in regard to nutrition but also with the requirements peculiar to his condition.

Like other researchers in the field of nutrition, such as W. C. Rose, Elvehjem has been especially interested in amino acids and also in enzymes. Some of his work reveals the interrelation of enzymes of the liver, amino acids, and disease. From it has come a practical point for immediate application in the relation between physician and patient. Elvehjem states in part: ". . . diseased conditions may result either suddenly or after long delayed periods. . . . these changes can be aggravated by an imbalance of amino acids which again emphasizes the importance of supplying amino acids in foods rather than in combinations which may be quite different than those usually encountered in food materials. . . . experimental findings indicate that the amino acids, in at least our most common protein foods, are readily released." Such information should guide the physician, who ought to warn his patients against unnecessary and possibly dangerous self-prescribing of vitamins, protein supplements, and amino acid preparations.

Partly on the basis of personal experiments on laboratory animals, Elvehjem warns of the health problems that may arise in later life when there are changes in metabolism during infancy. At the other end of the life span are the nutritional problems associated with geriatrics, about which much has been learned but even more remains to be discovered. Both Elvehjem and Ancel Keys have commented particularly on one phase of this. Keys has said: "Part of the problem of providing nutritional help for older persons consists in countering the claims of food faddists, the purveyors of special nostrums offered for nutritional purposes, and the writers who find the ready sale for books and articles promising miracles from peculiar diets." Elvehjem stresses this portion of the nutrition field by stating: "The worst enemy is the group of food faddists and the most vicious of these are the individuals who, by one method or another, place the M. D. after their name." Unquestionably related and of the same health significance are the so-called reducing diets, which may be causing disturbances that will be reflected in succeeding generations. Such diets, especially when they result in a high intake of one kind of food and the suboptimal intake of others, may prove subsequently to be harmful.

It is obvious that there is much to learn about nutrition, but this does not mean that that which already is known should not be applied now. There has been extended comment in recent years about health education. Many have been active in urging the adoption of healthful nutritional practices and the rejection of those that are harmful. In the field of nutrition there are excellent opportunities for all interested persons to apply one of the sound principles of health education—optimum nutrition. This is a wide field with many interesting aspects, but there should be no hesitation about applying immediately what already is known to be best for the population.

---

1. Elvehjem, C. A.: The Importance of Food in Preventive Medicine, Am. J. Pub. Health 43: 523 (May) 1953.

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

Vocational Rehabilitation for the Blind

Senator Potter (R., Mich.) has introduced a bill, S. 2436, to amend the Vocational Rehabilitation Act at the request of the National Rehabilitation Association. This bill would include the following important additions to this federal law. 1. It defines blindness, providing for certification by physicians skilled in diseases of the eye. 2. It permits the use of federal funds for the purchase of stocks of goods for business ventures for disabled persons generally. 3. Federal funds could be expended to pay for the supervision of work of the disabled and to finance their training, demonstrations, research, and fellowships, and to help in working out marketing arrangements. 4. It would allow federal payments to states whose programs of hospitalization exceed the 90 day limit. 5. It authorizes those state agencies for the blind that operate separately from other state rehabilitation agencies to deal directly with the Federal Office of Vocational Rehabilitation. 6. The title of the Office of Vocational Rehabilitation would be changed to Bureau of Vocational Rehabilitation and would continue in the Department of Health, Education, and Welfare. This bill is identical with H. R. 5562 (Rhodes) and H. R. 5610 (Williams), both previously reported. This measure was referred to the Labor and Public Welfare Committee.

Additional Vocational Rehabilitation Legislation

Senator Potter (R., Mich.) has introduced S. 2437 at the request of the National Rehabilitation Association. This bill would further amend the National Rehabilitation Act to authorize federal grants to the states for the establishment of rehabilitation centers to provide physical and occupational therapy, vocational or exploratory vocational training, testing, fitting or training in use of prosthetic devices, and adjustment training and evaluation or control of special disabilities. This bill would also allow the use of federal funds to establish workshops in which remunerative employment could be provided to severely disabled persons who cannot be absorbed in the competitive labor market under the direction of a public or private nonprofit agency. In each case the federal share of the cost would range from one-third to two-thirds, depending on the per capita wealth of the state. This measure is identical with H. R. 5563 (Rhodes) and H. R. 5609 (Williams), previously reported. This bill was referred to the Labor and Public Welfare Committee.

Knowland Compromise for Bricker Constitutional Amendment

Senator Knowland (R., Calif.) in the substitute S. J. Res. 1 offers a compromise for the Bricker Constitutional Amendment. President Eisenhower has endorsed Knowland's substitute, the text of which is as follows:

"Section 1. A provision of a treaty or other international agreement which conflicts with the Constitution shall not be of any force or effect. The judicial power of the United States shall extend to all cases, in law or equity, in which it is claimed that the conflict described in this amendment is present.

"Sec. 2. When the Senate consents to the ratification of a treaty the vote shall be determined by yeas and nays, and the names of the persons voting for and against shall be entered on the Journal of the Senate.

"Sec. 3. When the Senate so provides in its consent to ratification, a treaty shall become effective as internal law in the United States only through the enactment of appropriate legislation by the Congress.

"Sec. 4. This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by the legislatures of three-fourths of the several states within seven years from the date of its submission."

Public Assistance

Congressman Bennett (D., Fla.) has introduced a measure, H. R. 6505, which would change the formula used in computing the federal share of state public assistance programs. The federal contributions now for aged, blind, and permanently and totally disabled are four-fifths of the first $25 and one-half of an additional $30 in public assistance programs. The Bennett bill would raise the federal share to five-sixths of the first $30 and one-half of an additional $30. The present federal contributions to programs for aid to dependent children are four-fifths of the first $15 for the first child and one-half of an additional $15. For each additional child the federal contribution is four-fifths of the first $15 and one-half of an additional $6. Congressman Bennett in H. R. 6505 would make the federal contribution five-sixths of the first $18 and one-half of an additional $15 for the first child; for each additional child the federal share would be five-sixths of the first $18 and one-half of an additional $6. The measure was referred to the Ways and Means Committee.

Leprosy

Congressman Thompson (D., La.) has introduced a bill, H. R. 6285, which is identical with S. 1584, introduced by Senator Murray and previously reported. Congressman Thompson proposes that the U. S. Public Health Service take the lead in a drive against leprosy by (1) an information campaign, (2) construction of five additional leprosariums, (3) provision of treatment methods for veteran patients in VA hospitals and nonveterans in other hospitals, (4) establishment of rehabilitation and reemployment programs for discharged leprosy patients, and the selection of and arrangement with private physicians to treat leprosy patients at home, (5) money allowances for patients in federal leprosariums and treatment centers and for dependents of such patients, and (6) authorization of additional funds for research. This measure was referred to the Interstate and Foreign Commerce Committee.

Broadening Social Security

Congressman O'Brien (D., Mich.) has introduced a bill, H. R. 6320, which would broadly revise the old age and survivors insurance system in a number of ways, including the extension of coverage to a number of groups not now covered, increasing the portion of wages subject to tax and increasing monthly dollar benefits and the amount a retired person under 75 could earn in a month without suspension of his benefit payments. Provision would be made for retirement benefits for permanently and totally disabled persons, and cash sickness insurance would be provided for persons temporarily disabled. This bill is identical with S. 2260, introduced by Senator Lehman, and approximately 20 other previously reported bills. The measure was referred to the Ways and Means Committee.

Prepared by the Bureau of Legal Medicine and Legislation.

RECENT A. M. A. PUBLICATIONS

A Doctor for Your Community, containing suggestions for the use of communities in obtaining physicians for their areas. Prepared by the Council on Medical Service.

National Conference on Rural Health, a pamphlet containing a digest of the proceedings of the eighth National Conference on Rural Health, held at Roanoke, Va., in February, 1953. Prepared by the Council on Rural Health.

Quarterly Cumulative Index Medicus, volume 50, which covers the literature for the last half of 1951, is now off the press and available for purchase from the Order Department of the American Medical Association. The next volume is in production and should be completed by the end of the year.

MEDICAL NEWS

CALIFORNIA

Research on Leukemia.—Dr. Alfred Goldman, chief of professional services, announces a special project for research on leukemia at the City of Hope, Duarte. The leukemia unit, which operates as part of the tumor hospital, includes hospital beds and facilities for research in the cancer research institute. A leukemia committee, set up to administer the project, includes Dr. Fred S. Preuss, Duarte, director, department of pathology; Dr. Riojun Kinosita, director, cancer research institute; Dr. Aaron F. Rasmussen, City of Hope consultant in virology and professor of infectious diseases at the University of California at Los Angeles; and Dr. Hermann Karl Sachs, director, City of Hope tumor hospital and clinics.

COLORADO

Dr. Busse Heads Department at Duke.—Dr. Ewald W. Busse, chief, division of psychosomatic medicine, Colorado General Hospital, Denver, has been appointed chairman of the psychiatric department of Duke University School of Medicine, Durham, N. C. Dr. Busse, who has been at the Colorado University Medical Center since 1946, heads the mental hygiene and child guidance clinic and directs the electroencephalograph laboratory. He will assume his new post Nov. 1.

Cancer Seminar at the Broadmoor.—The fifth annual cancer seminar, sponsored by the Penrose Cancer Hospital and the American College of Pathologists, will be held at the Broadmoor Hotel, Colorado Springs, Sept. 5. The subject of the seminar will be "Lesions of the Small Bowel." Dr. Paul C. Swenson, professor of radiology, Jefferson Medical College of Philadelphia, will be guest radiologist and Dr. William A. Meissner of the New England Deaconess Hospital, Boston, guest pathologist. The guest of honor will be Dr. Harry M. Weber of the Mayo Foundation, Rochester, Minn.

DISTRICT OF COLUMBIA

Society News.—The Washington Academy of Surgery has elected Dr. George K. Nutting, president; Dr. W. Ross Morris, vice-president; and Dr. Duane C. Richtmeyer, secretary-treasurer.

University News.—The following members of the faculty of George Washington University School of Medicine, Washington, D. C., each having given 25 years of teaching service to the university, were honored by the University Alumni Association at a luncheon in Washington, where each was presented with a scroll: Dr. Walter A. Bloedorn, dean of the school of medicine; Dr. Harry F. Anderson, professor of dermatology and syphilology; Dr. Laurence L. Cockerille, assistant clinical professor of obstetrics and gynecology; Dr. Daniel B. Moffett, professor of otolaryngology; Dr. Maurice Protas, associate in medicine; and Dr. Herbert P. Ramsey, clinical professor of obstetrics and gynecology.

Personal.—Dr. John B. Barnwell, chief, Tuberculosis Division of the Veterans Administration in Washington, D. C., since 1946, recently received from his alma mater, Trinity College, Hartford, Conn., an honorary degree of doctor of science.——Dr. Thomas S. Lee, Washington, D. C., permanent honorary president of the Washington Heart Association, which he founded in 1927, recently received a medal and High Citation certificate from the American Legion for his work with the Washington Heart Association.——Dr. Jonathan M. Williams, Washington, D. C., was recently elected to honorary membership in the Medical Society of the Dominican Republic. Presentation of the diploma was made at a buffet supper at the embassy of the Dominican Republic.——Dr. Brian B. Blades, since 1946 head of the surgical department of George Washington University Hospital, Washington, D. C., received a citation for distinguished service from the University of Kansas Alumni Association during commencement exercises in Lawrence, Kan. The citation, made on the basis of his "contribution to mankind," mentioned his service during World War II in helping to establish chest clinics in Army general hospitals and his work in developing the operation for relief of intractible asthma. Dr. Blades was chief of the thoracic surgery section of the Walter Reed Army Hospital and consultant to the Surgeon General during World War II.

ILLINOIS

Committee for Crippled Children.—The University of Illinois board of trustees has appointed the following as members of the Professional Advisory Committee of the Division of Services for Crippled Children: Drs. Floyd S. Barringer, Springfield, Gerald M. Cline, Bloomington, Francis L. Lederer, Chicago, John H. Mathis and Robert B. Rutherford, Peoria, and Lawrence D. Ruttle, Joliet.

Personal.—Dr. John D. Scouller, Pontiac, Dr. Christian H. Zoller, Litchfield, and Dr. George F. Blough, Odell, were recently awarded 50 year membership certificates by the Illinois State Medical Society.——Dr. Roland I. Pritikin, Rockford, attended the seventh International Congress of the History of Science, Jerusalem, Israel, Aug. 3-7, as official delegate or observer for a number of American, Western Hemisphere, and international medical societies.

Chicago

Dr. Campbell Made Acting Superintendent.—Dr. Duncan D. Campbell, assistant superintendent, Chicago State Hospital, has been made acting superintendent. Dr. Campbell has been affiliated with the hospital since 1946. He formerly served as superintendent of the Missouri State Hospital, St. Joseph, and clinical director and manager of Veterans Administration and mental hospitals in Iowa, Maryland, and Arkansas.

Blatt Memorial Lecture.—The pediatric staff of Cook County Hospital announces that the annual Morris Lamm Blatt Memorial Fund lecture will be given Oct. 26 in conjunction with the Dr. Julian D. Levinson Research Foundation. Dr. Milton G. Bohrod, director, clinical and pathological laboratories, Rochester (N. Y.) General Hospital, will speak on pathology of allergy at 8:30 p. m. in the medical amphitheater of Cook County Hospital.

KENTUCKY

Doctor Reynolds Day.—In recognition of his more than 50 years of service as a general practitioner in Carlisle, the community honored Dr. Benjamin F. Reynolds at a special father's day program in the Christian Church and at a dinner given by Dr. Eslie Asbury, Cincinnati, at his Forest Retreat Farm. Dr. Reynolds was further honored at the alumni luncheon of his alma mater, the University of Louisville School of Medicine, where he was awarded a 50 year diploma.

Society News.—Some 30 physician members of the Committee on Emergency Medical Service of the Kentucky State Medical Association and its subcommittees recently spent a day in Louisville, planning ways to provide adequate medical care for major emergencies.——A long service ended recently when Drs. Herbert G. Davis, Marrowbone, and William F. Owsley, Burkesville, resigned as president and secretary, respectively, of the Cumberland County Medical Society and were succeeded by Drs. Joseph Schickel and William F. Boyer of

---

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

Burkesville.——At a joint meeting in Louisville, committees of the Kentucky State Dental Association and the Kentucky State Medical Association approved a program to promote further improvements in dentist-physician relationships and public service.——Dr. Guthrie Y. Graves, Bowling Green, vice-president from Western Kentucky, was elected president of the Kentucky State Medical Association at a recent meeting of its council. Dr. Graves will fill the vacancy created by the death on May 5 of Dr. R. Haynes Barr, Owensboro, until after the next annual meeting in September, when officers elected at last year's meeeting will be installed.

LOUISIANA

Dr. Albert Dent Honored.—Albert W. Dent, LL.D., president of Dillard University, New Orleans, has been elected president of the National Health Council. Dr. Dent became president of the university in 1941 after 6 years as superintendent of the Flint-Goodridge Hospital of Dillard University. He served as a delegate to the first World Health Assembly at Geneva in 1948 and was vice-president of the National Tuberculosis Association in 1949 and 1950. He is a member of the committee on faculty fellowships of the Ford Fund for the Advancement of Education.

University News.—Tulane University of Louisiana School of Medicine, New Orleans, recently received $12,000 from the Louisiana chapter of the Arthritis and Rheumatism Foundation to support a program of research and clinical studies. Dr. Thomas E. Weiss and Maridel Saunders, instructors in medicine, will conduct the work.——Rufus C. Harris, LL.D., president of Tulane University of Louisiana School of Medicine, New Orleans, has announced the following promotions: (1) to associate professor—Dr. Guillermo M. Carrera, tropical medicine and pathology; Henry E. King, Ph.D., psychiatry and psychology; Dr. Edgar H. Little, clinical radiology; and Dr. Russell Monroe, psychiatry; and (2) to assistant professor—Dr. John H. Dent, pathology; Drs. Norman Hunt and Sam A. Threefoot, medicine; Dr. Rodney C. Jung, tropical medicine; Dr. Kenneth H. Beach, clinical psychiatry; Dr. George D. Berkett, orthopedics; Drs. Joseph K. Bradford, Carl Nadler Jr., and John R. Powers, clinical medicine; Dr. Edward T. Krementz, surgery; Dr. John R. Mitchell, pediatrics; and Dr. David W. Von Gelder, clinical pediatrics.

MICHIGAN

Hospital News.—The Evangelical Deaconess Hospital in Detroit recently honored three staff physicians for a combined medical practice of 151 years. Scrolls were presented at a dinner in the Lochmoor Country Club, Grosse Pointe, to Drs. Charles W. Knaggs, Rudolph L. Pfeiffer, and Mortimer E. Danforth.

Seminars in Industrial Medicine.—The Detroit Industrial Physicians' Club, in cooperation with the faculty of Wayne University College of Medicine, Detroit, recently presented its second series of seminars in industrial medicine for undergraduate students. Two of the seminars were held at the college, where Gordon H. Scott, Ph.D., dean, served as chairman, and two were held on company premises. Dr. Henry S. Brown, Detroit, acted as host at the Michigan Bell Telephone Company and Dr. John H. Ganschow, Detroit, at the Chevrolet Gear and Axle Division of General Motors. Detroit physicians presented the following program: "Definition and Historical Development of Industrial Medicine," Alfred H. Whittaker; "Trauma to the Extremities and Rehabilitation Thereof," Charles G. Johnston; "Advantages of Industrial Medicine as a Specialty," Peter B. Rastello; "Accident Proneness and Accident Prevention," Henry S. Brown; "Neuropsychiatric Problems as Seen by the Industrial Physician," Gordon A. Eadie; "Cooperation Between Private Practitioner and Industrial Physician," William J. Fulton; "Clinical Problems of Tuberculosis and Pneumoconiosis" and "Control of Dusts," Frank J. Jarsen; "On the Job Management of Cardiacs and Hypertensives," Earle A. Irvin; "Health Insurance and Retirement Benefits," Charles J. Clark; "Plumbism and Its Control," Arlington F. Lecklider; "Occupational Skin Irritants and Dermatoses," Loren W. Shaffer; "Administration and Operation of Industrial Medical Programs," Earl F. Lutz; and "Rehabilitation of the Injured Worker," Lyndle R. Martin. Mr. J. C. Radcliffe discussed "Working Conditions and the Control of Health Hazards."

Personal.—Dr. Thomas Francis Jr., Ann Arbor, was recently awarded the James D. Bruce memorial medal by the American College of Physicians for his research work in various diseases.——Dr. Samuel A. Butler, senior physician, Pontiac State Hospital, was recently honored at a testimonial dinner after announcing his intention to retire after 44 years of service.——Dr. Leo H. Bartemeier, Detroit, president of the American Psychiatric Association and chairman of the Committee on Mental Health of the American Medical Association, has been appointed a member of the National Manpower Council, a private organization established at Columbia University, New York, by President Eisenhower in 1951.——Dr. Warren A. Smith, Berrien Springs, who has served his community for 50 years as a physician and has frequently been its health officer, was recently honored at an open house at the Lions' clubhouse, sponsored by numerous fraternal and civic organizations.——Dr. Harold F. Closz, Muskegon, has been awarded an honorary degree of doctor of science by Central College, Pella, Iowa, from which he was graduated 50 years ago. Dr. Closz, who has been surgical consultant at Mercy Hospital from 1925, was also affiliated with Hackley Hospital from that date, serving as chief of surgery or chief of staff from 1932 to 1950.——Dr. William T. Hyslop, who has been a member of the Traverse City State Hospital staff since 1938 and in charge of the outpatient department and mental hygiene clinics since 1940, has been appointed director of the adult mental health clinic of Saginaw General Hospital. The new clinic, which will be jointly supported by state and local funds and will serve mentally disturbed adults from Saginaw, Bay, Midland, and Tuscola counties, will be housed in the Davis House Nursing Home.

NEW JERSEY

Society News.—The Radiological Society of New Jersey has elected the following officers for 1953-1954: Drs. Vincent M. Whelan, Red Bank, president; Nicholas G. Demy, Plainfield, vice-president; Salomon Silvera, Jersey City, secretary; and Carye-Belle Henle, Newark, treasurer.——At its annual meeting, the New Jersey Dermatological Society elected Drs. Frederick C. Licks, South Orange, president; Emanuel M. Satulsky, Elizabeth, vice-president; Seymour L. Hanfling, East Orange, secretary; and Harry C. Goldberg, Plainfield, treasurer.

Belgian Awards for Tryparsamide Research.—The Belgian government recently presented the Cross of the Belgian Royal Order of the Lion and a $10,000 award to Dr. Louise Pearce, Belle Mead, for her work on the use of tryparsamide in the control of sleeping sickness. Dr. Pearce studied the effects of the drug on sleeping sickness in the Belgian Congo where it is now widely used. Later, with three collaborators, she continued the research at the Rockefeller Institute in New York. Two of her colleagues, Walter A. Jacobs, Ph.D., New Rochelle, and Michael Heidelberger, Ph.D., of Columbia University College of Physicians and Surgeons, New York, were awarded the decoration of Officer of the Order of Leopold II in ceremonies at the St. Regis Hotel, New York, and were given $2,000 each. An additional $4,000 was paid to the estate of the third collaborator, the late Dr. W. H. Brown of Princeton University.

NEW MEXICO

State Medical Election.—At the annual meeting in Albuquerque the New Mexico Medical Society elected Dr. Albert S. Lathrop of Santa Fe, president, Dr. John F. Conway, Clovis, president-elect, Dr. Stuart W. Adler, Albuquerque, vice-president, and Dr. Theodore E. Kircher Jr., Albuquerque, secretary-treasurer.

NEW YORK

Fellowship in Tuberculosis Research.—The New York Tuberculosis and Health Association announces that the James Alexander Miller fellowship for research in tuberculosis will be available from July 1, 1954, to June 30, 1955. This fellowship is designed to support a qualified medical investigator who will devote full time to a research project on tuberculosis. Assurance must be provided that the applicant will be acceptable in the laboratory or clinic of his choice and that the facilities necessary for the pursuit of the work will be available. The annual stipend will be $5,000. Awards will be announced Dec. 1. Application forms, which should be submitted in duplicate by Oct. 1, may be obtained from the New York Tuberculosis and Health Association, 386 Fourth Ave., New York 16.

Personal.—Dr. Herman E. Hilleboe, Albany, state health commissioner, has announced the provisional appointment of Dr. James J. Quinlivan, assistant director of the division of local health services, as director of the department's office of public health education. Dr. Quinlivan, who joined the state health department as an epidemiologist-in-training in 1937 after a year's private practice in Buffalo, became an assistant district state health officer in 1938, a district state health officer in 1942, and assistant director of the division of local health services in 1948.——Dr. Donald G. Dickson, Troy, has been appointed second deputy commissioner of health in the Rensselaer County health department.——Dr. Raymond G. Wearne, director of Wassaic State School for the past 16 years, has retired after 40 years of state service. Dr. Wearne has been affiliated with Binghamton State Hospital, Central Islip, Willard, Brooklyn, and Manhattan state hospitals.——Dr. Andrew C. Fleck, deputy commissioner of health in the Rensselaer County Health Department since May 29, 1950, was graduated recently from Albany Law School with a bachelor of law degree. In addition to this and his medical degree from Albany Medical College, Dr. Fleck holds a degree of master of public health, Johns Hopkins University School of Hygiene and Public Health, Baltimore.

New York City

Clinical Professors Appointed.—At the State University of New York College of Medicine, New York City, Dr. Charles W. Mueller has been appointed clinical professor of obstetrics and gynecology and Dr. Clifford F. Storey, clinical professor of surgery.

Courses in Accident Prevention.—The Center for Safety Education, New York University, announces that the fall term evening program in industrial and traffic accident prevention will begin Sept. 21. Courses offered in the fall term are:

Accident Prevention—Its Background, Objectives, and Relationships.
Philosophy and Basic Principles of Accident Prevention.
Industrial Hazards—Mechanical and Personal Control Methods.
Fire Prevention and Protection Inspection.
Organization of Fleet Safety Programs.
Vision in Industrial Safety and Motor Vehicle Operations.
Effective Speaking in Accident Prevention.
Principles of Safety Inspection.

The following special courses are also offered:

Marine Accident Prevention.
Hotel Accident Prevention.
Accident Prevention for Small Firms.
Hospital Accident Prevention.

Information may be secured from the Center for Safety Education, New York University, Washington Square, New York 3.

NORTH DAKOTA

State Medical Election.—At the annual meeting the North Dakota State Medical Association installed Dr. Joseph Sorkness of Jamestown as president and appointed Dr. Philip H. Woutat, Grand Forks, president-elect; Drs. David J. Halliday, Kenmare, and Reuben H. Waldschmidt, Bismarck, vice-presidents; Dr. Edwin H. Boerth, Bismarck, secretary; and Dr. Ernest J. Larson, Jamestown, treasurer.

OHIO

County Secretary Honored.—Dr. George A. Woodhouse, Pleasant Hill, who has served for 25 years as secretary of the Miami County Medical Association, was recently honored at the annual dinner of the association. A set of luggage was presented to Dr. and Mrs. Woodhouse on behalf of the county group. Dr. Woodhouse, who has practiced in Pleasant Hill for 28 years, has served as both president and secretary of the Second Councillor District Medical Society, has been an A. M. A. delegate from Ohio since 1942, and is active in committee work for both the state and the national associations. He is a staff member of the Memorial Hospital in Piqua and an associate staff member of Stouder Memorial Hospital, Troy. Dr. Woodhouse has served on the Board of Education in Pleasant Hill and on the Board of Public Affairs for 10 years, 8 years as its president. Dr. Dale A. Hudson of Piqua will succeed Dr. Woodhouse as secretary of the county association.

Radiological Health Training Program.—Short, tuition-free courses in radiological health will be presented by the Public Health Service at the Environmental Health Center, Cincinnati, as follows: basic courses, stressing basic radiation physics and survey techniques, Oct. 5-16, Jan. 11-22, 1954, and May 3-14, 1954; intermediate course, emphasizing laboratory assay of radioelements and x-ray survey techniques, Oct. 19-30, Jan. 25 through Feb. 5, 1954, and May 17-28, 1954; and advanced course, for professional personnel concerned in particular with occupational health problems, Feb. 8-19, 1954. These courses are designed to provide personnel working in health departments and other organizations with knowledge of the health hazards associated with radiation. Candidates should have a degree in medicine, engineering, or science (physical or biological). Information may be obtained from the Chief, Radiological Health Training Section, Public Health Service, Environmental Health Center, Cincinnati.

TENNESSEE

University News.—Dr. Daniel A. Brody, part-time instructor in medicine at the University of Tennessee College of Medicine, Memphis, has joined the division of medicine on a full-time basis.——Dr. Frank L. Roberts, assistant dean of the University of Tennessee College of Medicine, Memphis, since 1949, has been promoted to the position of associate dean. Dr. Roberts, who joined the staff of the college of medicine in 1936 as professor and chief of the division of preventive medicine, was public health officer of Gibson County for many years before he moved to Memphis. He is president of the Tennessee Public Health Association.

TEXAS

State Medical Election.—At its centennial session in Houston the Texas Medical Association elected Dr. George Turner, El Paso, president; Dr. Francis J. L. Blasingame, Wharton, president-elect; Dr. Andrew S. Tomb, Victoria, vice-president; Dr. John M. Travis, Jacksonville, secretary; and Dr. Thomas H. Thomason, Fort Worth, treasurer.

Personal.—Dr. Hatch W. Cummings Jr., Houston, was recently elected president of the Texas Academy of Internal Medicine.——Dr. Theodore R. Hannon, a former president of the Harris County Medical Society, was recently named president of St. Joseph's Infirmary medical staff, Houston.——Dr. Alvis E. Greer, Houston, president-elect of the American College of Physicians, has announced his retirement as editor of the *Medical Record and Annals,* after eight years in that position. Dr. Greer has served as president of the Harris County Medical Society and as chairman of the A. M. A. Section on Diseases of the Chest, and is professor of clinical medicine, Baylor University College of Medicine, Houston.——Dr. C. Frank Brown, Dallas, has been appointed medical director of the Southwestern Life Insurance Company of Dallas.

Society News.—At a recent meeting in Houston the Texas Diabetes Association elected Dr. Raymond L. Gregory, Galveston, president; Drs. George M. Jones, Dallas, and Laurence B. Reppert, San Antonio, vice-presidents; and Dr. Edmond K.

Doak, Houston, secretary-treasurer.——At the annual meeting, the Texas Neuropsychiatric Association named Dr. James R. Blair, San Antonio, president; Drs. Stephen Weisz, Dallas, and Edgar S. Ezell, Fort Worth, vice-presidents; and Dr. John L. Otto, Galveston, secretary-treasurer.——The Texas Orthopedic Association, during its annual meeting in Houston, elected Dr. Edward T. Smith, Houston, president, and Dr. John J. Hinchey, San Antonio, vice-president. Dr. Margaret Watkins, Dallas, was re-elected to serve as secretary-treasurer.——The Texas Dermatological Association has selected Dr. Maurice C. Barnes, Waco, president, and Dr. C. Duncan Stewart, Corpus Christi, vice-president. Dr. Thomas L. Shields, Fort Worth, was re-elected secretary.——The Texas Society of Gastroenterologists and Proctologists has named Dr. Cecil O. Patterson, Dallas, president; Drs. J. Wade Harris, Houston, and Edward J. Lefeber, Galveston, vice-presidents; and Dr. William T. Arnold, Houston, secretary-treasurer.——At the annual meeting in Houston, the Texas Railway and Traumatic Surgical Association elected Dr. William E. Crump, Wichita Falls, president; Drs. Raleigh R. White, Temple, and Albert O. Singleton Jr., Galveston, vice-presidents; and Dr. Walford D. Marrs, Fort Worth, secretary-treasurer.——Dr. James B. Robinett Jr., Houston, took office as president of the Texas Society of Anesthesiologists at its meeting in Houston. Other officers named at the meeting were Drs. Frank O. Barrett, El Paso, president-elect; Joe B. Wood, Dallas, vice-president; and Charles R. Allen, Galveston, secretary-treasurer.——Dr. Charles L. McGehee has been named president of the International Medical Assembly of Southwest Texas; Dr. John J. Hinchey, president-elect; Drs. Marvin A. Childers and Adolfo Urrutia, vice-presidents; and Dr. John M. Smith, secretary-treasurer. All the officers reside in San Antonio.——During its meeting in Houston, the Texas Heart Association installed Dr. Joseph F. McVeigh, Fort Worth, as president. Dr. George R. Herrmann, Galveston, was chosen president-elect; Dr. Daniel D. Warren, Waco, vice-president; and Mr. R. L. Thomas, Dallas, secretary-treasurer. Executive director and executive secretary are, respectively, Mr. Edgar M. Brown and Miss Roberta Miller, both of Dallas.

WEST VIRGINIA

State Medical Election.—At the annual meeting at White Sulphur Springs, the West Virginia Medical Association elected Dr. Russell Kessel, Charleston, president, to take office Jan. 1, 1954, and Drs. George F. Evans, Clarksburg, and James L. Patterson, Logan, first and second vice-presidents, respectively. Dr. T. Maxfield Barber, Charleston, was renamed treasurer for his 27th consecutive term. The 1954 convention will be held at the Greenbrier in White Sulphur Springs, Aug. 19-21.

WISCONSIN

Dr. Bear Honored.—At the annual dinner for medical men given by the sisters of St. Clare Hospital in Monroe, Dr. Wilson G. Bear was commended for his 50 years of service to the Monroe community. One of the founders of the Monroe Clinic, Dr. Bear was also active in developing the Loofbourow Hospital (now the Evangelical Deaconess Hospital) and formerly served as chief of staff of St. Clare Hospital.

Orthopedic Clinics.—Orthopedic field clinics have been scheduled as follows by the Bureau for Handicapped Children, State Department of Public Instruction, for persons under 21: Ashland, Aug. 13-14; Wausau, Aug. 26-27; Manitowoc, Sept. 2-3; Marinette, Sept. 9; Kenosha, Sept. 16-17; Green Bay, Sept. 24-25; Superior, Sept. 30-Oct. 1; Racine, Oct. 8-9; La Crosse, Oct. 13-16; Sheboygan, Oct. 20-30; Chippewa Falls, Nov. 3-4; Rhinelander, Nov. 11-12; Eau Claire, Nov. 19-20; Appleton, Nov. 23-24; and Fond du Lac, Dec. 2-3. Parents and physicians are invited to attend the clinic with the child. If the public health nurse believes that the child referred to the clinic for orthopedic reasons is also in need of other services, the bureau asks that it be notified of this fact. Referral forms, obtainable from the Bureau for Handicapped Children, Room 146 North, State Capitol, Madison 2, should be requested in advance of the clinic date.

GENERAL

Grants for Travel to Science Congress.—The National Science Foundation will receive applications for grants to assist in payment of travel expenses to the Pacific Science Congress, Quezon City, Philippines, Nov. 16-28. Application forms, which may be obtained from the National Science Foundation, Washington 25, D. C., should be filed before Sept. 1.

Congress of Ophthalmology Invites Papers.—The International Congress of Ophthalmology, which will be held in New York, Sept. 12-17, 1954, has selected as the chief topics for discussion primary glaucoma and etiology of uveitis. A number of voluntary papers by authors on subjects of their own choosing will also be heard. Original papers should be sent before Jan. 1, 1954, to the secretary-general, Dr. William L. Benedict, 100 First Ave. Bldg., Rochester, Minn.

Crippled Children's Magazine.—With the June issue, the *Crippled Child* magazine adopted a new format and a change in its 30-year-old editorial policy. Formerly directed at professional workers, it will now be directed more toward the problems confronting parents and others interested in guiding the lives of crippled children. Technical material will henceforth be issued in special pamphlets. Named as consulting editors of the magazine, which is published by the National Society for Crippled Children and Adults, are Dr. Noah D. Fabricant, Chicago, and Earl S. Miers, member of the executive committee of the society.

Physicians Needed in Canal Zone.—The Health Bureau, Canal Zone, is urgently in need of physicians. Vacancies occur from time to time in practically all specialties, but the present shortage is most acute in the field of obstetrics and gynecology; there are vacancies also for general practitioners. Starting salaries range from $7,425 (Civil Service rating GS-11) to $10,450 (Civil Service rating GS-13), according to training, experience, and type of position. Free transportation to the Canal Zone is provided for the appointee, legal dependents, and household goods. Family housing is available. There are good hospitals, schools, and churches under standard American living conditions. A two month vacation with pay (which includes time lost for illness) is allowed, and reduced rates are granted on Panama Line vessels between the Canal Zone and New York. Positions come under Civil Service. Applicants should write to Health Director or Personnel Director, Balboa Heights, Canal Zone.

Society News.—At its annual meeting in Atlantic City, N. J., the Society for Pediatric Research elected Drs. Harold E. Harrison, Baltimore, president; Russell J. Blattner, Houston, Texas, vice-president; Sydney S. Gellis, Boston, secretary-treasurer; and Charles U. Lowe, Buffalo, and C. Henry Kempe, San Francisco, members of the council.——The American Pediatric Society has elected Drs. Rustin McIntosh, New York City, president; Wilburt C. Davison, Durham, N. C., vice-president; Aims C. McGuiness, Philadelphia, secretary-treasurer; Stewart H. Clifford, Brookline, Mass., recorder-editor; and John A. Anderson, Salt Lake City, member of the council (7 years).——At the annual meeting at Jasper National Park, Alberta, Canada, the Pacific Northwest Obstetrical and Gynecological Association elected Drs. William M. Wilson, Portland, Ore., president; John H. Harrison, Vancouver, Wash., president-elect; Richard D. Reekie, Spokane, Wash., vice-president; Earl L. Hall, Great Falls, Mont., secretary; and Verne J. Reynolds, Boise, Idaho, and Albert Trites, Vancouver, B. C., executive members.

Blakeslee Award Contest.—The American Heart Association announces that entries are now being received for the second annual Howard W. Blakeslee award of $1,000 for outstanding scientific reporting in the field of heart and blood vessel diseases. The award will be presented to the person whose creative efforts during 1953 in any medium of mass communication—including newspapers, magazines, radio, television, films, or books—are judged to have contributed most to public understanding of heart and circulatory diseases. Entries will be judged on the basis of (1) accuracy and significance; (2) the skill and originality with which advances in research, and in the treatment, care, and prevention of cardiovascular disease are translated into educational material of interest and value to the general public; and (3) the ability of the entrant to project a positive and hopeful viewpoint toward problems of the heart and circulation. Material published or produced during the 1953 calendar year is eligible for consideration. Entries must be postmarked not later than Jan. 15, 1954. The winner will be announced at the annual meeting of the American Heart Association, in April, 1954, in Chicago. Entry blanks and additional information may be obtained from the Chairman, Managing Committee, Howard W. Blakeslee Award, American Heart Association, 44 E. 23rd St., New York 10.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

Area	Aug. 1, 1953 Paralytic Type	Aug. 1, 1953 Total Cases Reported	Aug. 2, 1952 Total
New England States			
Maine	11	14	2
New Hampshire	..	15	4
Vermont	1	1	..
Massachusetts	5	21	19
Rhode Island	2	5	3
Connecticut	1	7	16
Middle Atlantic States			
New York	30	134	89
New Jersey	15	29	38
Pennsylvania	..	39	47
East North Central States			
Ohio	29	124	128
Indiana	..	33	41
Illinois	22	99	141
Michigan	26	97	159
Wisconsin	..	21	67
West North Central States			
Minnesota	35	104	113
Iowa	8	27	244
Missouri	12	49	14
North Dakota	6	10	7
South Dakota	..	15	8
Nebraska	8	21	96
Kansas	..	33	83
South Atlantic States			
Delaware	..	..	4
Maryland	15	33	2
District of Columbia	..	4	8
Virginia	13	42	46
West Virginia	14	38	58
North Carolina	19	88	15
South Carolina	4	12	6
Georgia	3	13	16
Florida	3	20	20
East South Central States			
Kentucky	7	18	94
Tennessee	16	53	27
Alabama	12	21	18
Mississippi	..	13	24
West South Central States			
Arkansas	10	12	13
Louisiana	9	25	51
Oklahoma	6	18	59
Texas	15	92	276
Mountain States			
Montana	6	9	10
Idaho	..	3	11
Wyoming	1	2	9
Colorado	5	10	26
New Mexico	..	5	30
Arizona	4	24	13
Utah	..	12	..
Nevada	..	1	6
Pacific States			
Washington	..	10	50
Oregon	1	7	9
California	80	147	86
Territories and Possessions			
Alaska	..	1	1
Hawaii	..	3	4
Puerto Rico	..	..	..
Total	454	1,634	2,311

LATIN AMERICA

Surgeons to Meet in Brazil.—The second congress of the Brazilian section and the first Panamerican congress of the International College of Surgeons will be held in Curitiba, State of Parana, Oct. 5-9. Official themes are "Death During Anesthesia," "Thoracotomy: Indications and Contraindications," and "Surgery of the Biliary Ducts." Correspondence should be addressed to the Brazilian Section of the International College of Surgeons, Rua Cesario Motta, 112—Predio Conde de Lara, São Paulo, Brazil, or International Secretariat, International College of Surgeons, 1516-24 Lake Shore Drive, Chicago 10.

FOREIGN

Ford Foundation Grant to Israel.—The Ford Foundation has made a grant of $410,000 to Israel for the solution of the basic problems of food production, health in the semitropical climate, and the adjustment of immigrants. Medical research problems assigned to the Hebrew University-Hadassah Medical School, Jerusalem, include cures for diarrhea, gastroenteritis, and fungus diseases of the skin and nails as well as means of combating trachoma and schistosomiasis.

World Federation for Mental Health.—The annual meeting of the World Federation for Mental Health will convene at the University of Vienna, Austria, Aug. 16-22. The theme of the meeting is "Social Provision for Mental Health." The seventh annual meeting is to be held in Toronto, Canada, at the same time as the fifth International Congress on Mental Health, Aug. 14-21, 1954. The theme of these meetings will be "Mental Health in Public Affairs." Information may be had from the Secretary, National Association for Mental Health, 39 Queen St., London, W.1, England.

Funds for Expansion of Health Center.—With a five year grant of 35 million francs and $28,000 (approximately $133,000) to the Association d'Hygiène de L'Aisne, the Rockefeller Foundation has renewed its support of the Soissons Public Health Center at Soissons, France. The French Ministry of Public Health and Population, with the aid of WHO and UNICEF and an earlier foundation grant, has established a center at Soissons, about 60 miles east of Paris, to study public health and medical care problems in a limited area and to work for improvements that could be applied to the country as a whole. Plans for expansion of the Soissons program are under way.

Essay Contest.—The Academy of Medicine of Turin announces a competition for the first Saint Vincent Prize for Medical Sciences (7,500,000 lira, approximately $1,200), established to promote scientific research in the medical field. The prize is offered for an essay or a group of essays, printed, dealing with a single subject related to a medical branch and representing noteworthy progress in the knowledge of the investigated matter. Essays must have been published (in Italian, Latin, French, English, Spanish, Portuguese, German, or Russian) after 1950 and must reach the Academy of Medicine in Turin, Via Po, 18, not later than Dec. 31. Five copies, two of which shall remain the property of the academy, with a summary in Italian or French concerning the substance as well as the original and concluding parts of the subject matter, should be sent by registered mail. The winner will be announced at Saint Vincent, Valley of Aosta, in June, 1954, at a meeting sponsored by the academy.

CORRECTIONS

Arterenol in the Treatment of Shock.—In the article by this title in THE JOURNAL, July 25, 1953, page 1200, the first sentence in the last paragraph of the left hand column should read as follows: "Arterenol was given continuously in this series of patients for ½ to 36 hours, without ill effects becoming manifest."

Transfusion of Platelets.—In the editorial on this subject in THE JOURNAL, Aug. 8, 1953, page 1434, the temperature given in the next to last paragraph of the right-hand column should be 5 C instead of 51 C.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Clinical Session, St. Louis, Dec. 1-4.

1954 Annual Session, San Francisco, June 21-25.

1954 Clinical Session, Miami, Florida, Nov. 30-Dec. 3.

1955 Annual Session, Atlantic City, N. J., June 6-10.

1955 Clinical Session, Boston, Nov. 29-Dec. 2.

National Conference on Physicians and Schools, Moraine-on-the-Lake Hotel, Highland Park, Ill., Sept. 30-Oct. 2. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago 10, Director.

Public Relations Institute, Drake Hotel, Chicago, Sept. 2-3. Mr. Leo E. Brown, 535 North Dearborn St., Chicago 10, Director.

American Academy of Pediatrics, Municipal Auditorium, Miami, Fla., Oct. 6-9. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Secretary.

American Association of Medical Clinics, Congress Hotel, Chicago, Oct. 9-11. Dr. Edwin P. Jordan, P. O. Box 114, Charlottesville, Va., Executive Director.

American Association of Medical Record Librarians, Palace Hotel, San Francisco, Oct. 5-9. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, The Homestead, Hot Springs, Va., Sept. 10-12. Dr. William F. Mengert, 2211 Oak Lawn Ave., Dallas, Texas, Secretary.

American Association for the Surgery of Trauma, Drake Hotel, Chicago, Oct. 1-3. Dr. James K. Stack, 700 North Michigan Blvd., Chicago, Secretary.

American College of Surgeons, Conrad Hilton Hotel, Chicago, Oct. 5-9. Dr. Michael L. Mason, 40 East Erie St., Chicago, Secretary.

American Congress of Physical Medicine, Palmer House, Chicago, Aug. 31-Sept. 4. Dr. Walter J. Zeiter, 30 North Michigan Ave., Chicago 2, Executive Director.

American Dietetic Association, Los Angeles, Aug. 24-28. Miss Ruth M. Yakel, 620 N. Michigan Ave., Chicago 11, Executive Secretary.

American Electroencephalographic Society, Commander and Continental Hotels, Cambridge, Mass., Aug. 17-22. Dr. John A. Abbott, Massachusetts General Hospital, Boston 14, Secretary.

American Hospital Association, San Francisco, Aug. 31-Sept. 3. Mr. George Bugbee, 18 East Division St., Chicago 11, Executive Director.

American Medical Writers' Association, Elk's Club, Springfield, Ill., Sept. 23. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

American Roentgen Ray Society, Netherland Plaza, Cincinnati, Sept. 29-Oct. 2. Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretary.

American Society of Anesthesiologists, Olympic Hotel, Seattle, Oct. 6-9. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Fall Meeting, Yale University, New Haven, Conn., Sept. 7-9. Dr. Carl C. Pfeiffer, 1853 West Polk St., Chicago 12, Secretary.

Association of Medical Illustrators, Sheraton Hotel, Baltimore, Oct. 5-7. Miss Evelyn J. Erickson, 1512 St. Antoine St., Detroit 26, Secretary.

Biological Photographic Association, Hotel Statler, Los Angeles, Aug. 31-Sept. 3. Miss Jane H. Waters, 533 West 57th St., New York 19, Secretary.

Colorado State Medical Society, Savoy Hotel, Denver, Sept. 29-Oct. 2. Mr. Harvey T. Stethman, 835 Republic Bldg., Denver 2, Executive Secretary.

District of Columbia, Medical Society of the, Hotel Statler, Washington, Oct. 5-7. Mr. Theodore Wiprud, 1718 M St. N.W., Washington 6, Secretary.

Gerontological Society, Mark Hopkins Hotel, San Francisco, Aug. 25-27. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

Gulf Coast Conference on Industrial Health, Shamrock Hotel, Houston, Tex., Oct. 1-3. Dr. Sidney Schnur, 411 Medical Arts Bldg., Houston 2, Tex., Vice Chairman.

Kansas City Southwest Clinical Society, Kansas City, Mo., Sept. 28-Oct. 1. Dr. W. H. Algie, 825 North 7th Street, Kansas City, Kans., Secretary.

Kentucky State Medical Association, Brown Hotel, Louisville, Sept. 22-24. Dr. Bruce Underwood, 620 South Third St., Louisville 2, Secretary.

Michigan State Medical Society, Pantlind Hotel and Civic Auditorium, Grand Rapids, Sept. 23-25. Dr. L. Fernald Foster, 606 Townsend St., Lansing 15, Secretary.

Mississippi Valley Medical Society, Springfield, Ill., Sept. 23-25. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Montana Medical Association, Northern Hotel, Billings, Sept. 17-20. Mr. L. R. Hegland, 104 North Broadway, Billings, Executive Secretary.

Neurosurgical Society of America, The Broadmoor, Colorado Springs, Colo., Sept. 23-27. Dr. C. D. Hawkes, 22 North Manassas St., Memphis 5, Tenn., Secretary.

Nevada State Medical Association, Carter Hotel, Elko, Sept. 24-26. Dr. William A. O'Brien III, 505 Chestnut St., Reno, Secretary.

New Hampshire Medical Society, Equinox House, Manchester, Vt., Oct. 4-6. Dr. Deering G. Smith, 44 Chester St., Nashua, Secretary.

Northern Minnesota Medical Association, Fergus Falls, Aug. 28-29. Dr. C. L. Oppegaard, Crookston, Secretary.

North Pacific Society of Internal Medicine, Harrison, B. C., Sept. 18-19. Dr. Clarence C. Pearson, 1115 Terry Ave., Seattle 1, Wash., Secretary.

North Texas-Southern Oklahoma Fall Clinical Conference, Wichita Falls, Texas, Sept. 16. Dr. C. H. Wilson, 1300 Eighth St., Wichita Falls, Texas, Secretary.

Pennsylvania, Medical Society of the State of, William Penn Hotel, Pittsburgh, Sept. 21-24. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

Regional Meetings, American College of Physicians:

North Dakota, Fargo, Sept. 12. Dr. Robert B. Radl, 221 Fifth St., Bismarck, Governor.

Arkansas-Oklahoma, Tulsa, Okla., Sept. 19. Dr. Wann Langston, 117 North Broadway, Oklahoma City 2, Governor.

Western New York, Syracuse, Oct. 9. Dr. E. C. Reifenstein, 109 South Warren St., Syracuse 2, Governor.

Ohio, Dayton, Oct. 9. Dr. Charles A. Doan, Ohio State University College of Medicine, Columbus 10, Governor.

Montana-Wyoming, Missoula, Mont., Oct. 9-10. Dr. Harold W. Gregg, 127 West Park Street, Butte, Mont., Governor.

Southwestern Surgical Congress, Hotel Utah, Salt Lake City, Sept. 21-23. Dr. C. R. Rountree, 1227 Classen St., Oklahoma City 3, Secretary.

Tennessee Valley Medical Assembly, Read House Hotel, Chattanooga, Sept. 28-29. Dr. William G. Stephenson, 612 Medical Arts Bldg., Chattanooga 3, President.

U. S. Chapter, International College of Surgeons, Waldorf-Astoria, New York, Sept. 13-17. Dr. Karl Meyer, 1516 Lake Shore Drive, Chicago 10, Secretary.

Utah State Medical Association, Salt Lake City, Sept. 10-12. Dr. Homer E. Smith, 42 South Fifth East St., Salt Lake City 2, Secretary.

Vermont State Medical Society, Equinox House, Manchester, Oct. 4-6. Dr. James P. Hammond, 542 Main St., Bennington, Secretary.

Washington State Medical Association, Olympic Hotel, Seattle, Sept. 13-16. Dr. Bruce Zimmerman, 338 White-Henry-Stuart Bldg., Seattle 1, Secretary.

Western Orthopedic Association, Sun Valley, Idaho, Oct. 5-8. Dr. Forrest L. Flashman, 1301 Spring St., Seattle 4, Secretary.

Wisconsin, State Medical Society of, Hotel Schroeder, Milwaukee, Oct. 5-7. Mr. Charles H. Crownhart, 704 East Gorham St., Madison 3, Secretary.

FOREIGN

Association of Surgeons of Great Britain and Ireland, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

Canadian Medical Association, Vancouver, B. C., Canada, June 18-22, 1954. Dr. T. C. Routley, 135 St. Clair Ave. W., Toronto 5, Ont., Canada, General Secretary.

Congress of International Anesthesia Research Society, Chateau Frontenac, Quebec, Canada, October 26-29. Dr. A. William Friend, 515 Nome Ave., Akron 20, Ohio, Chairman, Program Committee.

Congress of the International Association of Limnology, Cambridge and Windermere, England, Aug. 20-30. For information write: Professor G. C. Hutchinson, Osborn Zoological Laboratory, Yale University, New Haven, Conn., U. S. A.

Congress of the International League Against Rheumatism, Geneva, Switzerland and Aix-les-Bains, France, Aug. 23-29. For information write: Dr. W. Tegner, The London Hospital, London E.1, England.

Congress of the International Society of Angiology, Lisbon, Portugal, Sept. 18-20. Dr. Henry Haimovici, 105 East 90th St., New York 28, N. Y., U. S. A., Secretary.

Congress of the International Society of Surgery, Lisbon, Portugal, Sept. 14-20. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

Interim Meeting, Aero Medical Association, University of Brussels Medical School, Brussels, Belgium, Sept. 24-27. Dr. Andre Allard, Medical Director of SABENA, 145 Rue Royale, Brussels, Belgium, Secretary.

International Cancer Congress, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

International Conference on Thrombosis and Embolism, Basle, Switzerland, July 15-19, 1954 Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

International Congress of Acupuncture, Kolpinghaus, Adolf-Kolping-Strasse 1, Munich, Germany, August 22-25. Dr. G. Bachmann, 29 Lilienstrasse, München 9, Germany, Organizer and Secretary.

International Congress of Electroencephalography and Clinical Neurophysiology, Boston, Mass., U. S. A., Aug. 18-21. Dr. Robert S. Schwab, Massachusetts General Hospital, Boston 14, Mass., U. S. A., Secretary-General.

International Congress of the European Society of Haematology, Amsterdam, Holland, Sept. 8-12. Dr. M. C. Verloop, Maliesingle 15, Utrecht, Holland, Secretary.

International Congress on Genetics, Bellagio, Italy, August 24-31. Prof. C. Barigozzi, Instituto de Genetica, Universita de Milano, 10 via Celoria, Milan, Italy, Secretary.

International Congress of Hippocratic Medicine, Evian, France, Sept. 3-6. Prof. P. Delore, 13, rue Jarente, Lyon, France, Secretary-General.

International Congress of Hydroclimatism and Thalassotherapy, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni Venac 1, Belgrade, Yugoslavia, Secretary General.

International Congress of International College of Surgeons, Sao Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U.S.A., Secretary-General.

International Congress of Logopedics and Phoniatrics, Zurich, Switzerland, Sept. 1-5. Dr. Deso A. Weiss, 115 East 86th St., New York 28, N. Y., U. S. A., General Secretary.

International Congress on Mental Health, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

International Congress of Microbiology, Rome, Italy, Sept 6-12. For information write: Dr. V. Puntoni, Citta Universitaria, Rome, Italy.

International Congress on Obstetrics and Gynecology, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

International Congress of Paediatrics, Havana, Cuba, Oct. 12-17. Prof. Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba, President.

International Congress of Psychology, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

International Congress for Psychotherapy, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

International Congresses of Tropical Medicine and Malaria, Istanbul, Turkey, Aug. 28-Sept. 4. Professor Dr. Ihsan Sükrü Aksel, Tunel Meydam, Beyoglu, Istanbul, Turkey, General Secretary.

International Gerontological Congress, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

International Leprosy Congress, Madrid, Spain, Oct. 3-10. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

International Neurological Congress, Lisbon, Portugal, Sept. 7-12. Prof. Almeida Lima, Avenida do Brazil 53, Lisbon, Portugal, Secretary-General.

International Office of Documentation of Military Medicine, Rome, Italy, Oct. 14-18. Colonel Medecin Prof. A. Campana, Office of the Ministero della Difesa-Esercito, Rome, Italy, Secretary.

International Physiological Congress, Montreal, Canada, Aug. 31-Sept. 4. Dr. A. S. V. Burgen, Dept. of Physiology, McGill University, Montreal, Canada, Secretary.

International Society for the Study of Biological Rhythms, Basle, Switzerland, Sept. 18-19. For information write: Prof. Dr. F. Georgi, Neurologische Universitats-Poliklinik, Socinstrasse 55, Basle, Switzerland.

Journees Medicales, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geofroix, Colombes (Seine) France.

Latin American Congress of Obstetrics and Gynecology, Buenos Aires, Argentina, Oct. 26-31.

Latin American Congress of Otorhinolaryngology, Caracas, Venezuela, Feb. 21-25, 1954. Dr. Victorino Marquez Reveron, Centro Medico, Caracas, Venezuela, Secretary-General.

Pacific Science Congress, Quezon City and Manila, Philippines, Nov. 16-28. Dr. Patrocinio Valenzuela, College of Pharmacy, University of the Philippines, Quezon City, Philippines, Secretary-General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, Mexico, D.F., Mexico, Feb. 28-March 4, 1954.

Pan American Medical Association, International Medical Cruise Congress, S. S. Nieuw Amsterdam, Jan. 6-22, 1954. Dr. Joseph J. Eller, 745 Fifth Avenue, New York 22, N. Y., U. S. A., Executive Director.

Pan American Medical Women's Alliance, Beekman Towers Hotel, New York, N. Y., Sept. 24-Oct. 1. Dr. Ina Marsh, 140 Linwood Ave., Buffalo, N. Y., U. S. A., Registration Chairman.

Persian Gulf Medical Society, Dhahran, Saudi Arabia, Dec. 7-8. Dr. N. J. Conan Jr., Department of Internal Medicine, Arabian American Oil Company, Dhahran, Saudi Arabia, Secretary.

Regional Meeting, American College of Physicians, San Juan, Puerto Rico, Oct. 15-17. Dr. R. Rodriquez-Molina, Veterans Administration Center, San Juan, Puerto Rico, *Governor.*

Sectional Meeting, American College of Surgeons, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

World Conference on Medical Education, British Medical Association House Tavistock Square, W.C.1, London, England, Aug. 22-29. Secretariat: World Medical Association, 2 East 103d St., New York 29, N. Y., U. S. A.

World Congress of the World Confederation for Physical Therapy, London, England, Sept. 7-12. Miss M. J. Neilson, Chartered Society of Physiotherapy, Tavistock House, South, Tavistock Square, London, W.C.1, England, Secretary.

World Federation for Mental Health, Vienna, Austria, Aug. 17-23. For information write: Miss E. M. Thornton, 19 Manchester St., London, W.1, England.

World Medical Association, The Hague, Netherlands, Aug. 31-Sept. 7. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., Secretary-General.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* All centers where there are five or more candidates. Sept. 8-10 (Part I only). Candidates may file applications at any time, but the National Board must receive them at least six weeks before the date of the examination they wish to take. Exec. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

EXAMINING BOARDS IN SPECIALTIES

American Board of Dermatology and Syphilology: All candidates must now pass a written examination. *Written.* Various centers, Sept. 3. *Oral.* Philadelphia, Oct. 16-18. To be eligible, candidate must complete 36 months of training before Oct. 1. Final date for filing applications was May 1. Exec. Sec., Miss Janet Newkirk, 66 East 66th St., New York 21.

American Board of Internal Medicine: *Oral.* San Francisco, Sept. 30-Oct. 2, Chicago, Nov. 30-Dec. 2. The closing date for acceptance of applications for the San Francisco and Chicago oral examination was April 1. *Written.* October 19. The closing date for acceptance of applications was May 1. Exec. Sec.-Treas., Dr. William A. Werrell, 1 West Main St., Madison 3.

American Board of Neurological Surgery: *Oral.* New Haven, October. Final date for filing application was July 1, Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, Kingshighway and Euclid Ave., St. Louis.

American Board of Neurology and Psychiatry: *Psychiatry and Neurology.* Dec. 14-15. Applications no longer being accepted Chicago, April 29-30. Final date for filing application is Feb. 1. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Obstetrics and Gynecology: *Written.* Various cities of the United States and Canada, Feb. 5. Application for examination or re-examination, as well as requests for resubmission of case reports, must be made prior to October 1. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: Chicago, Oct. 5-9. *Written.* Various Centers, January 1954. Final date for filing applications was July 1. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

American Board of Orthopaedic Surgery: Chicago, January 1954. Final date for filing application is August 15. Sec., Dr. Harold A. Sofield. 122 S. Michigan Ave., Chicago 3.

American Board of Otolaryngology: *Oral.* Chicago, Oct. 5-9. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

American Board of Pathology: *Written. Pathologic Anatomy and Clinical Pathology.* Chicago, Oct. 8-10. Sec., Dr. William B. Wartman, 303 E Chicago Ave., Chicago.

American Board of Pediatrics: *Oral.* Miami, Oct. 9-11; Indianapolis, Dec. 4-6. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Plastic Surgery: *Entire Examination.* San Diego, Oct. 29-31. Final date for receipt of case reports was June 1. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

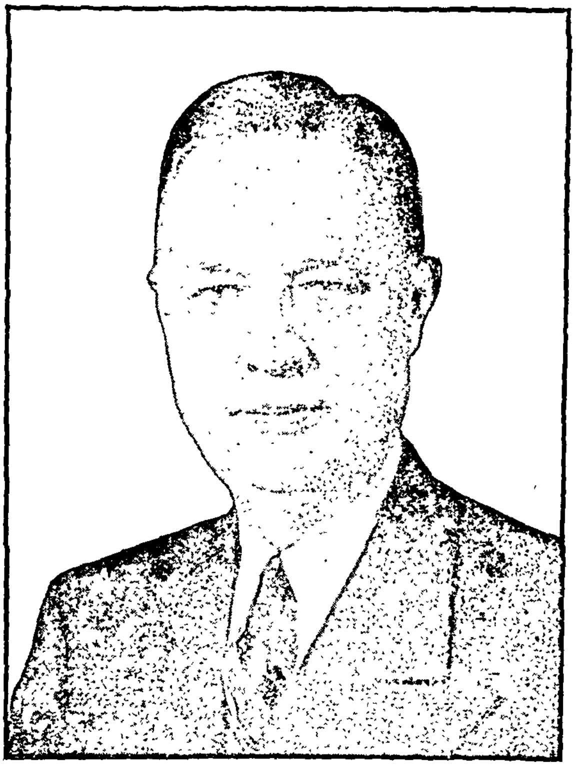
American Board of Proctology: *Part II. Oral and Written. Anorectal Surgery and Proctology.* Philadelphia, Sept. 19. Sec., Dr. Louis A. Buie, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: *Oral. Radiology, Roentgenology, Diagnostic Roentgenology and Therapeutic Radiology.* Chicago, Dec. 6-11. Final date for filing application was July 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

Board of Thoracic Surgery: *Written.* Various centers throughout the country, September 11. Final date for filing application was July 1. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2.

DEATHS

Henderson, Elmer Lee ⊕ Louisville, Ky., President of the American Medical Association, 1950-1951, and from June, 1947, to June, 1949, chairman of the Board of Trustees, died July 30, aged 68, of carcinoma of the prostate. Dr. Henderson was born in Garnettsville, Ky., March 23, 1885. In 1909 he received the degree of doctor of medicine from the University of Louisville Medical Department, where for many years he was a member of the faculty and where he served as a member of the board of overseers. Since 1911 Dr. Henderson had practiced general surgery in Louisville. In World War I he was a major in the U. S. Army Medical Corps, serving nine months overseas. He was later commissioned a lieutenant colonel in the Medical Reserve Corps. In World War II he was chairman of the Fifth Service Command Committee, Procurement and Assignment Service for Physicians, Dentists, and Veterinarians. Since 1943 he had been a surgical consultant to the Air Surgeon's Office, U. S. Army. In 1948 he was a member of a mission to Japan to survey and make recommendations on social security, medical education, and medical service. In his long service in organized medicine, Dr. Henderson was a member of the House of Delegates of the American Medical Association from 1937 to 1939, and was elected a member of the Board of Trustees in 1939. He was elected vice-chairman of the Board in December, 1945. He served as chairman of the Board's executive committee for two years, and then was elected chairman of the Board. He gave up that office in 1949 when, by unanimous vote of the House of Delegates, he was made President-Elect. He served as president of the World Medical Association, chairman of its United States committee, and at the time of his death was a member of the council. Dr. Henderson was a past president of the Kentucky State Medical Association, of the Jefferson County Medical Society, of the Southeastern Surgical Congress, of the Southern Medical Association, and of the Alumni Association of the University of Louisville. He was one of the founders of the American Board of Surgery, a fellow of the Società Piemontese di Chirurgia, and the Japanese Medical Association, honorary member of the International College of Surgeons, and a member of the board of trustees of the National Society for Crippled Children and Adults. He was a member of the board of governors and consultant in surgery at the Kosair Crippled Children Hospital, consultant on the staff at SS Mary and Elizabeth Hospital, and on the surgical staff of Kentucky Baptist Hospital and St. Joseph Infirmary.



Elmer Lee Henderson, M.D., 1885-1953

Mann, William Leake ⊕ Rear Admiral, U. S. Navy, retired, Arlington, Va.; born in Georgetown, Texas, July 26, 1884; Harvard Medical School, Boston, 1908; graduate of Naval Medical School, Naval War College, the Army Field Service School at Carlisle Barracks, Pa., and the Navy's School of Aviation Medicine; in October, 1908, was appointed assistant surgeon with the rank of lieutenant (jg) in the medical corps of the Navy; advanced through the various ranks to that of rear admiral which he attained in July, 1943; served at Navy medical department facilities throughout the United States, in China, in the Philippine Islands, and in Haiti; his tours of sea duty included assignments aboard the USS Tennessee, the USS Hannibal, the USS Cincinnati, and the aircraft carrier, the USS Saratoga; a veteran of World Wars I and II, was credited with the development of medical companies and was instrumental in getting them written into the table of organization of the marine corps; from 1940 to 1942 was medical officer in command of the Naval Hospital, Corpus Christi, Texas, and following this assignment became the first commanding officer of the Naval Medical Research Institute, Bethesda, Md.; following his advancement to the rank of rear admiral in 1943, became district medical officer of the 13th naval district with headquarters at Seattle, Wash.; was placed on the retired list of the Navy, Nov. 1, 1945, after more than 37 years of continuous active naval service; fellow of the American College of Surgeons; in 1943 president of the Association of Military Surgeons of the United States; delegate to the International Congress of Military Medicine, Bucharest, Rumania, 1937; was awarded a special letter of commendation by the Navy Department for service in World War I, World War I medal, Medal Militaire (Haiti), and Haitian Campaign medal; died June 12, aged 69, of adenocarcinoma of the stomach.

Rudolph, Myron Parkhill ⊕ Col. U. S. Army, retired, Raleigh, N. C.; born in Punxsutawney, Pa., Jan. 28, 1889; Hahnemann Medical College and Hospital of Philadelphia, 1915; received the degree of doctor of public health from Johns Hopkins University, Baltimore, 1937; commissioned a first lieutenant in the medical corps of the Army in 1917; subsequently served in all commissioned ranks of the regular Army and was promoted to the rank of colonel in 1942; during World War I served with the Sixth Infantry and was decorated for gallantry in action; during World War II served in North Africa and as surgeon of the U. S. Seventh Army in Europe; following the war, served as chief of preventive medicine in Germany and as surgeon for the Third Army, Fort McPherson, Ga., until his retirement in January, 1949; during his military career, was awarded the Silver Star, the Distinguished Service Medal, the Legion of Merit, the Bronze Star Medal, and the Purple Heart; received the French Croix de Guerre from the French government; awarded the United States of America Typhus Commission Medal; specialist certified by the American Board of Public Health; member of the American Public Health Association; chief of the maternal child health clinic and crippled children's section of the North Carolina State Board of Health; died June 30, aged 64, of coronary sclerosis and myocardial infarction.

⊕ Indicates Member of the American Medical Association.

Kolb, Edwin Paul ⊕ Patchogue, N. Y.; born in Frostburg, Md., July 8, 1883; University of Maryland School of Medicine, Baltimore, 1912; from 1926 to 1951 secretary of the Suffolk County Medical Society, of which he was president; past president of the Associated Physicians of Long Island and the South Side Clinical Society; specialist certified by the American Board of Internal Medicine; member of the American College of Chest Physicians; fellow of the American College of Physicians; served during World Wars I and II; consultant, Central Island (N. Y.) State Hospital, Kings Park State Hospital in Kings Park, Pilgrim State Hospital in Brentwood, Southampton (N. Y.) Hospital, South Side Hospital in Bay Shore, and John T. Mather Memorial Hospital in Port Jefferson; retired April 30, 1949, after 33 years as superintendent of the Suffolk Sanatorium in Holtsville; director of the Peoples National Bank; died June 14, aged 69, of coronary occlusion.

Oliver, Everard Lawrence ⊕ St. Petersburg, Fla.; born in 1876; Harvard Medical School, Boston, 1904; formerly practiced in Boston, where he was clinical professor of dermatology and syphilology emeritus at his alma mater; an Associate Fellow of the American Medical Association; member of the Massachusetts Medical Society and the American Dermatological Association, of which he was vice-president, 1936-1937; past president of the New England Dermatological Society; specialist certified by the American Board of Dermatology and Syphilology; consultant in dermatology at the Benjamin Stickney Cable Memorial Hospital in Ipswich, Boston Lying-In Hospital, Children's Medical Center in Boston, Elliot Community Hospital in Keene, N. H., Massachusetts Eye and Ear Infirmary, and Long Island Hospital in Boston; honorary physician at the Massachusetts General Hospital in Boston, where he died June 12, aged 77.

Pusey, Brown ⊕ Chicago; born in Elizabethtown, Ky., Dec. 14, 1869; University of Pennsylvania Department of Medicine, Philadelphia, 1892; in 1893 was appointed assistant surgeon in the U. S. Navy, in which service he remained until July 1, 1896; studied in Germany and Vienna 1898-1899, and in Freiburg and Vienna in 1904; professor emeritus of ophthalmology at Northwestern University Medical School, where from 1908 to 1927 he was professor; at one time assistant professor of ophthalmology at Rush Medical College and instructor of pathology of the eye at the University of Chicago; an Associate Fellow of the American Medical Association; member of the American Ophthalmological Society; fellow of the Institute of Medicine of Chicago; served during World War I; on the staff of Cook County Hospital from 1905 to 1910; died in St. Luke's Hospital July 4, aged 83, of arteriosclerotic heart disease.

Rassieur, Louis ⊕ Kirkwood, Mo.; born in St. Louis Dec. 21, 1876; Marion-Sims College of Medicine, St. Louis, 1899; professor of surgery at St. Louis University School of Medicine; member of the founders group of the American Board of Surgery; an Associate Fellow of the American Medical Association; member of the Western Surgical Association; fellow of the American College of Surgeons; junior intern, St. Louis City Hospital, 1899-1900, senior intern, 1900-1901, assistant superintendent, 1901-1903, and surgeon, 1910-1914; surgeon, Mt. St. Rose Hospital, 1908-1909, Lutheran Hospital, 1908-1909, and St. Mary's Infirmary, 1909-1924, where he was on the advisory staff 1940-1946; neurological surgeon, St. Louis City Sanitarium since 1914; surgeon, St. Mary's Group of Hospitals, 1924-1940, and acting surgeon in chief 1940-1946; died in St. Mary's Hospital May 28, aged 76, of cerebral thrombosis, myocardial infarction, and coronary sclerosis.

Jones, Ira Fulton ⊕ Fort Smith, Ark.; born in Hernando, Miss., Sept. 21, 1899; University of Pennsylvania School of Medicine, Philadelphia, 1922; assistant professor of obstetrics and gynecology at the University of Arkansas School of Medicine in Little Rock; fellow of the American College of Surgeons; past president of the Sebastian County Medical Society; formerly vice-president of the Arkansas Medical Society; affiliated with Sparks' Memorial and St. Edward's Mercy hospitals; died in the Harkness Pavilion of Presbyterian Hospital in New York March 30, aged 53, of bleeding esophageal varices and Laennec's cirrhosis of the liver.

Last, Murray A. ⊕ New York City; University and Bellevue Hospital Medical College, New York, 1927; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology and the Association for Research in Ophthalmology; fellow of the American College of Surgeons; ophthalmic surgeon at the Manhattan Eye, Ear and Throat Hospital; ophthalmologist at Midtown Hospital; consulting ophthalmologist at the Lexington School for the Deaf; served as chief of the eye clinic at Mount Sinai Hospital; died June 25, aged 52, of coronary thrombosis.

Adams, Glenn, Cincinnati; Pulte Medical College, Homeopathic, Cincinnati, 1904; member of the Industrial Medical Association; died in Bethesda Hospital June 21, aged 70, of ruptured aneurysm of the abdominal aorta.

Bill, Jose Penteado ⊕ Boston; Harvard Medical School, Boston, 1916; member of the American Public Health Association; assistant professor of public health and preventive medicine at Boston University School of Medicine; died June 8, aged 69.

Brace, Robert Walter, Oakland, Calif.; Jefferson Medical College of Philadelphia, 1900; for many years affiliated with the Veterans Administration hospitals in various parts of the country; served during World War I; died June 12, aged 77, of bronchopneumonia and carcinoma of the prostate.

Flitcroft, William ⊕ Waukesha, Wis.; Columbia University College of Physicians and Surgeons, New York, 1890; an Associate Fellow of the American Medical Association; member of the Medical Society of New Jersey; past president of the Passaic County (N. J.) Medical Society; formerly practiced in Paterson, N. J., where he was affiliated with Paterson General Hospital; died in Waukesha Memorial Hospital recently, aged 91, of cerebral hemorrhage and hypertension.

Fort, Mannie Almanza ⊕ Bainbridge, Ga.; Tulane University of Louisiana School of Medicine, New Orleans, 1903; died May 9, aged 80, of ileus.

Goodrich, Benjamin Elmer ⊕ Detroit; State University of Iowa College of Medicine, Iowa City, 1926; specialist certified by the American Board of Internal Medicine; member of the Central Society for Clinical Research, American College of Chest Physicians (as well as past president of the Michigan Chapter), and the American Trudeau Society; fellow of the American College of Physicians; served during World War I and World War II; affiliated with Henry Ford Hospital; died in Pleasant Ridge, Mich., June 15, aged 53, of coronary occlusion.

Guenther, Edward George, Burlington, Iowa; Hospital College of Medicine, Louisville, Ky., 1898; died April 14, aged 77, of acute coronary thrombosis and hypertensive cardiovascular disease.

Hansen, Elmer Harry, Long Beach, Calif.; Tulane University of Louisiana School of Medicine, New Orleans, 1918; died in Veterans Administration Hospital June 16, aged 63, of carcinoma.

Hughes, Michael Edward ⊕ Lieut. Col., U. S. Army, retired, Los Angeles; Bellevue Hospital Medical College, New York, 1893; served in the Spanish-American War and World War I; died June 1, aged 83.

Jones, Daniel Dailey ⊕ Berne, Ind.; Northwestern University School of Medicine, Chicago, 1909; served during World War I; formerly health officer; died June 11, aged 82, of cerebral thrombosis and arteriosclerosis.

Jessup, Horace Sihler ⊕ Sequim, Wash.; McGill University Faculty of Medicine, Montreal, Canada, 1923; served during World War II; died April 3, aged 52, of multiple sclerosis.

Keene, Walter Bullock, Philadelphia; Jefferson Medical College of Philadelphia, 1891; died June 11, aged 85.

Kline, Philip, Tulsa, Okla.; University of Nebraska College of Medicine, Omaha, 1919; served during World War I; at one time president of the alumni association of the University of Nebraska; for a long time official physician for Northeast Oklahoma Golden Gloves tournament and all dual boxing matches; died June 16, aged 62, of coronary occlusion.

Knepp, James Warren ⊕ Manchester, N. H.; University College of Medicine, Richmond, 1905; a captain in the medical corps of the Army during the Mexican border campaign in 1916; served during World Wars I and II; affiliated with the Veterans Administration; died in Newtown, Conn., June 11, aged 72.

Koop, Severin Herman ⊕ Richmond, Minn.; University of Minnesota Medical School, Minneapolis, 1927; member of the American Academy of General Practice; superintendent of the Richmond Hospital; died in Minneapolis recently, aged 54, of coronary occlusion.

Kratzer, Eugene Ferdinand ⊕ Kokomo, Ind.; Medical College of Indiana, Indianapolis, 1903; also a graduate in pharmacy; died in Robert Long Hospital, Indianapolis, June 1, aged 76, of bronchogenic carcinoma.

Law, Charles Royce ⊕ Coolidge, Ariz.; Rush Medical College, Chicago, 1938; served during World War II; died June 5, aged 43, of a heart attack.

McCarthy, Edward, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1900; served during World War I; died June 10, aged 75, of myocarditis.

McKinnon, Daniel Angus ⊕ Marianna, Fla.; Medical Department of Tulane University of Louisiana, New Orleans, 1905; died in Albuquerque, N. Mex., March 17, aged 75, of diverticulitis.

Manning, Ernest Tibbetts ⊕ Omaha; Rush Medical College, Chicago, 1904; specialist certified by the American Board of Pathology; member of the College of American Pathologists and the American Society of Clinical Pathologists; at one time on the faculty of the University of Nebraska College of Medicine; served as vice-president and later as chairman of the state board of medical examiners; formerly health commissioner; died June 5, aged 75, of cerebral hemorrhage.

Martin, George Clark ⊕ Indiana, Pa.; Temple University School of Medicine, Philadelphia, 1928; fellow of the American College of Surgeons; past president of the Indiana County Medical Society; served during World Wars I and II; member and past president of staff of Indiana County Memorial Hospital; died April 25, aged 53, of cerebral thrombosis.

Martin, Henry Sleeper ⊕ Warsaw, N. Y.; Jefferson Medical College of Philadelphia, 1919; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; past president of the Eighth District Medical Society; chief of staff emeritus at the Wyoming County Community Hospital; died June 11, aged 62, of cerebral hemorrhage.

Martin, John Letton, Washington, D. C.; University and Bellevue Hospital Medical College, New York, 1899; died June 15, aged 74, of acute congestive heart failure.

Martt, Sherman Guthrie, Pomeroy, Ohio; University of Louisville (Ky.) Medical Department, 1894; died June 18, aged 83, of a heart attack.

Morgan, Isaiah C. ⊕ Nanticoke, Pa.; Jefferson Medical College of Philadelphia, 1915; served during World War I; formerly county coroner; affiliated with Nanticoke State Hospital; served as chief medical examiner of the Veterans Administration in Wilkes-Barre regional office; president of the radio station WILK; died in Nuangola, Pa., April 26, aged 60, of coronary thrombosis.

Mueller, James Alexius ⊕ Lewistown, Mont.; State University of Iowa College of Medicine, Iowa City, 1932; member of the American Academy of General Practice; county physician; on the staff of St. Joseph's Hospital; died in Fenton, Iowa, May 30, aged 52, of injuries received in an airplane crash.

Nelson, Richard Buzzard ⊕ Hammond, Ind.; Indiana University School of Medicine, Indianapolis, 1933; also a graduate in pharmacy; member of the Association of Military Surgeons of the United States; served during World War II; affiliated with St. Margaret's Hospital, where he died June 9, aged 44, of coronary thrombosis.

Nichols, Robert Columbus ⊕ Ontario, Calif.; Northwestern University Medical School, Chicago, 1911; died March 29, aged 73, of coronary artery disease.

Nissler, Christian William ⊕ Lansdowne, Pa.; Jefferson Medical College of Philadelphia, 1919; member of the American College of Chest Physicians and the American Trudeau Society; for many years on the faculty of his alma mater; formerly medical director of White Haven (Pa.) Sanatorium; died May 31, aged 64, of coronary occlusion.

Norment, Richard Baxter Jr. ⊕ Hagerstown, Md.; University of Maryland School of Medicine, Baltimore, 1914; formerly associated with the U. S. Public Health Service; died in Washington County Hospital April 6, aged 61.

Noyes, William Bradbury, New York City; Columbia University College of Physicians and Surgeons, New York, 1891; served on the staffs of the Mountainside Hospital in Montclair, N. J., and the Columbus Hospital; died in St. Luke's Hospital June 20, aged 87, of arteriosclerosis.

O'Connor, Andrew Francis ⊕ Reno, Nev.; Loyola University School of Medicine, Chicago, 1923; member of the California Medical Association; died in the Veterans Administration Center June 23, aged 62, of gastrointestinal hemorrhage, esophageal varices, and Laennec's cirrhosis.

Parker, Joseph Garrison, New York City; Columbia University College of Physicians and Surgeons, 1948; senior assistant surgeon in the U. S. Public Health Service Reserve, serving in Cincinnati when he became ill; certified by the National Board of Medical Examiners; served an internship in internal medicine at the Duke Hospital in Durham, N. C.; interned and served a fellowship in pathology and a residency in internal medicine at the Mount Sinai Hospital, where he died June 21, aged 29.

Pedigo, William Sherman ⊕ Strawn, Texas; University of Nashville (Tenn.) Medical Department, 1894; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; served during World War I; past president of the Palo-Pinto-Parker Counties Medical Society; member of the Texas Association of Railway Surgeons; for many years city health officer; founder and part owner of the Strawn Hospital; surgeon for the Texas and Pacific Railway Company; died March 7, aged 82, of carcinoma of the sigmoid.

Riffle, Raymond Ernest, Indianapolis; Indiana University School of Medicine, Indianapolis, 1911; died May 24, aged 66, of coronary occlusion and diabetes mellitus.

Robberson, Marvin Early ⊕ Wynnewood, Okla.; University of Louisville (Ky.) Medical Department, 1905; formerly medical director and part owner of the Wynnewood Hospital; died June 7, aged 73, of cerebral hemorrhage.

Roby, Robert Sharman, Jackson, Miss. (licensed in Mississippi in 1907); died June 19, aged 67.

Rooney, John Francis, Boston; College of Physicians and Surgeons, Boston, 1921; for many years police surgeon; died in Dorchester, Mass., April 5, aged 71, of coronary thrombosis.

Shamanky, Harry Solomon ⊕ Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1917; served during World War II; died May 16, aged 58.

White, William Henry Clay ⊕ Elizabeth City, N. C.; University of Virginia Department of Medicine, Charlottesville, 1922; served as county coroner; died in the Albemarle Hospital May 31, aged 55, of a cerebral vascular accident and hypertension.

Wunderlich, Edwin B. ⊕ Chicago; Dearborn Medical College, Chicago, 1906; died in the Lutheran Deaconess Hospital July 3, aged 76, of arteriosclerotic heart disease.

FOREIGN LETTERS

LONDON

Preschool Child Mortality.—A review of one of the more neglected aspects of pediatrics, mortality in children aged 1 to 5 years, has recently been published from the Child Welfare Department, Edinburgh (*Edinburgh M. J.* 60:212, 1953). It is based on a study of child deaths in Edinburgh from 1901 to 1951. In 1901 the total number of deaths in this age group was 777; in 1951 it was 45, in spite of the fact that during this half century there was an increase in the population aged 1 to 5 years. The main causes of death in 1901 were as follows (the corresponding figure for 1951 is given in parentheses): measles 111 (0), whooping cough 175 (2), tuberculosis 123 (5), and bronchitis and pneumonia 130 (5). In 1951, in this age group, there were no deaths from measles, scarlet fever, or diphtheria, and only one from "diarrhoeal diseases." In view of the reputation that Edinburgh had in the earlier years of the century for the high incidence of bovine infection (in 1904, for instance, there were 2,974 cows kept by dairymen within the city, and 39 of them were removed by the city veterinary officer because of infection with tuberculosis), it is interesting to note that "the problems of prevention and control of tuberculosis is now mainly, if not entirely, that of the human type infection." The comments of the authors of this report on the present position of BCG vaccination in this country are worthy of note: "The introduction of B.C.G. vaccination in 1950 was approved nationally, but official restrictions were imposed on its general application and it can only be used for special groups of the population. Unless and until it can be made available as a routine prophylactic measure in the early days of life and steps taken to maintain the immunity thus produced, little can be expected from the restricted use of the vaccine."

The only cause of death that has not shown a satisfactory decrease is death from accidents: in 1901 there were 22 such deaths, and in 1951 there were 13. "In 1901-09 the ratio of fatal accidents occurring at home to those occurring without the home was 9:5, while in 1950-51 the corresponding ratio was 3:8. Deaths from accidental and violent causes during the first decade of the century accounted for 2.8 per cent. of the total deaths among 1-5 year olds, and during the period 1942-51 such deaths represented 14.8 per cent. of the total group deaths. Thus, accidental and violent deaths among preschool children have assumed major importance and the prevention of such deaths must be regarded as one of the primary objects of modern social medicine."

Accidents in the Home.—The latest figures on accidental deaths available for England and Wales are contained in the recently published annual report by the chief medical officer of health of the Ministry of Health. "On the State of the Public Health," concerning the period April 1, 1950, to Dec. 31, 1951, shows that in 1951 the number of deaths from motor vehicle accidents was 4,510 and from all other accidents 10,464. The corresponding figures for 1950 were 4,230 and 9,851. Domestic accidents were responsible for over 5,000 fatalities, about 20% of which occurred in children under 5 years of age and about 60% in elderly persons over 65. "It is still the case that more children under 15 die from accidental deaths in their homes than are killed on the roads; it is significant that between the ages of one and five a fatal home accident is one of the largest causes of death."

Diphtheria Immunization.—A recent circular issued by the Ministry of Health summarizes the present position with regard to diphtheria immunization in England and Wales. Notifications of diphtheria have fallen from 23,199 in 1944 to 274 in 1952 (nine months only), while the deaths have decreased from 934 in 1944 to 31 in 1952. The Minister of Health "greatly appreciates all that local authorities have done to achieve this remarkable progress," but "notes that the rate of decline in the number of deaths from diphtheria has not been so great in 1952 as in previous years." The number of children immunized under local authority arrangements (including those immunized by family physicians for whom records were received by the local authority) from the beginning of 1940 to June 30, 1952, was 10,025,032. During the first half of 1952, 287,678 children were immunized, of whom 104,293 were under 1 year of age. This last figure represents only 31% of the estimated number of children reaching the age of 1 year during this period, whereas the aim of the immunization campaign is not less than 75% of babies before their first birthday. The diphtheria immunization target for 1953 is 491,000 babies under 1 year of age.

National Spastics Society.—At the recent annual meeting of the National Spastics Society, which was formed about two years ago, some details were given concerning the facilities now available in Great Britain for the care and training of spastic children. It is estimated that there are more than 20,000 spastic patients in the country, more than half of whom are under the age of 16. Since the society was founded, a clinic has been opened in Croydon, a small school in Reading, a teaching and training center in Swansea, and a large special school for spastic children in Newcastle. Plans are being made to build a special center for these persons in Bristol, another large school in Birkenhead, a play center in Cheltenham, and a small clinic in Kingston. In addition, a small school has been opened by the Swindon Hospital Group, and the N. E. London Hospital Board has decided to open a spastic unit and clinic. The Middlesex County Council has appointed a welfare officer to examine the special needs of these patients. In conjunction with the British Council, the society is planning to turn Coombe Farm, Croydon, into a sheltered training workshop, where 16 to 25-year-old spastic persons will learn to earn a living.

Prescribers' Notes.—"Prescribers' Notes" is the title of a booklet produced by the Ministry and the Department of Health for Scotland, in cooperation with the general services committee of the British Medical Association, and distributed to all general practitioners taking part in the National Health Service. It was first published in February, 1952. The fifth, and latest, issue exemplifies the aims of the publication. It acknowledges receipt from a physician of a 3 lb. parcel containing his month's mail from proprietary drug firms. This consisted of 3 booklets, 8 blotters, 16 postcards (for samples), and 73 folders. Of the 122 preparations advertised, only 7 were priced. It is stated that "many doctors are not giving on their E.C.10's [i. e., the official N.H.S. prescription form] directions for use when tablets or capsules are prescribed." Confirmation of this was obtained by a random sample of prescriptions for tablets or capsules written by different physicians; this showed that 54% of them had given no directions whatever. Attention is also drawn to the fact that "in recent months there has been a steady increase in the average number of prescriptions per form E.C.10. A serious aspect of this increase has been a tendency to write prescriptions for different members of the

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

family on the same prescription form." An actual example is reproduced of a prescription form made out to a woman, which contains prescriptions for three different lots of tablets: one for phenobarbital, one for ephedrine, and one for amphetamine. The phenobarbital was for the mother and the other two for her young child, but there is no indication of this on the form. It is not suggested that these two types of inadequate prescribing are typical of the general standard, but it is rather disturbing to realize that even a small proportion of practitioners can be so careless in their handling of potentially dangerous drugs.

Factory Accidents.—The annual report of the chief inspector of factories for 1951 shows that there were 828 fatal accidents, compared with 799 in 1950. The number of nonfatal accidents fell from 192,260 to 182,616, the lowest figure recorded since 1938. In recording a rise of 250% (from 1,756 in 1939 to 6,241 in 1951) in the number of accidents connected with transport, the chief inspector calls for an enforcement of stricter discipline among drivers and users of these vehicles. Compared with 1939, there has been a drop of 37% in the number of cases of sepsis, which is largely attributed to the publicity campaign carried out by accident prevention organizations. Reference is made to the increasingly useful role that older persons are playing in industry, e. g., men between 65 and 70 working as part of a mill team in a tin plate works and a man of 67 working as a steel erector, and only 6.5% of the total accidents occurred in persons over the age of 60. The available evidence suggests that older persons are not more prone to injury but that the consequences of their accidents tend to be more serious. The position with regard to accidents to young persons was not so satisfactory, as they represented a higher proportion of all accidents than they did in 1950. In many factories management either did not appreciate certain fundamental characteristics of youth or failed to allow for curiosity, high spirits, immaturity, and lack of judgment.

There was a decrease in the total number of gas poisoning accidents, which fell from 242 (25 fatal) in 1950 to 228 (17 fatal) in 1951; carbon monoxide was responsible for 105 (9 fatal). There were 64 cases of lead poisoning, compared with 57 in 1950; none was fatal. There were 31 cases of anthrax (1 fatal), compared with 36 in 1950. There were 178 cases of epitheliomatous ulceration, only one of which was fatal, a record since 1920 when the condition was made notifiable. The number of notifications of chrome ulceration rose from 143 to 203; the rise was largely due to the increased number of cases among workers engaged in the manufacture of bichromates. Cases of industrial dermatitis voluntarily notified during the year were 3,281, a decrease of 290 over 1950.

On the subject of the introduction of color to make surroundings more cheerful and therefore encourage a bigger output of work, always a popular topic in these reports, reference is made to certain enlightened managements who made determined efforts to use color to the best effect, although the blacks, grays and whites of former years still persist in many cases. Reference is also made to the need for more frequent and systematic cleaning of windows, both inside and out, with a view to improving lighting facilities.

NORWAY

Prognostic Significance of the Size of a Malignant Tumor of the Breast.—Hitherto it has largely been taken for granted that the smaller a malignant tumor in the breast the better is the prognosis. Prof. Leiv Kreyberg, who is in charge of the Institute for General and Experimental Pathology at the Oslo University, has lately challenged the accuracy of this assumption and, in conjunction with Dr. Tor Christiansen, has undertaken a critical scrutiny of 974 cases of cancer of the breast examined in the period 1933-1942. This scrutiny, carried out in 1952, concerned patients with a minimum observation period of 10 years and in many cases a much longer observation period. Among these patients were 56 with tumors whose size at the first examination was that of a Norwegian hazel nut or smaller. In 10 of these cases the size of the tumor was that of only a pea or a bean. All these patients were followed up, and the cause of death was ascertained for those who died. The survivors underwent a clinical examination in 1952, when several of them were found to be suffering from metastases masquerading under the diagnosis of rheumatism. Indeed, there were as many as six women who, in spite of having passed the 10 year observation period in apparently good health, were found to be suffering from hidden metastases to which they ultimately succumbed. As only 17 of the 56 women had been under observation for as long as 14 years, it is probable that several of them will ultimately die of cancer, and the following conclusion is drawn: "More than half of all the patients with a carcinoma of the breast of the size of a hazel nut or less will succumb to their disease. . . ." Even among the 10 women with carcinomas no bigger than a pea or bean when first examined there were as many as 4 who died of metastases.

Professor Kreyberg and Dr. Christiansen have come to the conclusion that, though modern methods of treatment can delay the ultimate fatal issue, patients with exceptionally small tumors when first examined cannot count on any better prognosis than the average of patients in the first and second stages of the disease. This investigation, published in *Tidsskrift for den Norske Laegeforening* for June 1, 1952, is commented on in a leading article in the same number of this journal. Here it is pointed out that "the prognosis for a large tumor of the breast can be just as good as for a small tumor, the matter depending on the degree of malignancy. We celebrate our therapeutic triumphs when the degree of malignancy of a tumor is small."

Medical Supervision of Persons in Radiological Service.—In accordance with the Workers' Protection Act, steps were taken in 1947 to provide for the systematic supervision of persons exposed to x-rays or radium. This supervision consists of technical control provided by the state physical control laboratory and of medical control of exposed persons, whose blood is examined yearly. Responsibility for these measures rests with the state workers' supervision, whose senior medical officer is Dr. Arne Bruusgaard. A member of his staff, Dr. Per Sundby, has recently reported on this supervision, analyzing the results obtained from 1947 to the end of 1952 with 250 men and 1,054 women exposed for at least 15 hours a week to x-rays or radium in the course of their professional duties. In as many as 457 cases (40% of the total) the blood picture showed departures from the normal. Repeated examinations at short intervals of the blood of the same person showed that these abnormalities were comparatively stable. The abnormality rate was higher in certain hospitals with cramped and inconvenient quarters than in more modern quarters whose construction reflected modern standards. There was no evidence to show that a person's age or the number of years of exposure played any essential part in these abnormalities, which were most frequent in persons most exposed, such as "diagnosis nurses" and sanatorium staff members who spent much time in screening.

These blood examinations included hemoglobin determination and erythrocyte and leukocyte counts. The abnormalities found in the blood included leukopenia, lymphocytosis (granulocytopenia), shift to the left, combined changes, occasional morphological changes, and anemia. Sundby's findings, in many respects, confirm the observations previously made in Sweden by Dr. Nils G. Nordenson, whose work on blood changes in radiologists was published in 1946. Dr. Sundby refers also to the work on this subject published in 1950 in the *American Journal of Medical Science* by Dr. H. C. March. These Swedish and American studies do much to support Sundby's conclusion that there is still room for improvement with regard to the medical supervision of persons engaged in radiological work.

PARIS

Origin of Acute Tuberculosis in Children.—An important study was made on acute tuberculosis in children by Prof. R. Debré and Dr. H. E. Brissaud, who reported their results at the March 3 meeting of the National Academy of Medicine. Their aim was to discover the origin of the infection of 418 tuberculous children. In 45% of cases it was not possible to discover the tuberculous contact, but in 55% it was ascertained that the contact was one of the child's parents. In 80% of the cases the contact was known to be tuberculous but had not been isolated for various reasons, such as that he lived with his family while waiting for admission to a sanatorium, he had a leave of absence granted during treatment, or he had a relapse. Further inquiry revealed that no child had been correctly vaccinated and isolated. The authors stressed the necessity of isolating immediately the young patient from his family, of correct education of the public, and also of including tuberculosis among the diseases to be compulsorily reported.

Anticoagulative Action of Sympathicolytics.—At the Jan. 9 meeting of the Medical Society of the Paris Hospitals, P. Uhry and H. Kaufmann presented a paper on the influence of sympathicolytics on blood coagulation. It is known that sympathetic excitation provokes hypercoagulability and that, on the other hand, heparin is an anticoagulant. It is also known that the use of sympathicolytics and heparin therapy are two methods of treatment of angina pectoris. The authors wondered if, by injecting sympathicolytics alone, the same hypocoagulability would not be obtained as with heparin. They used the following drugs: (*a*) a piperoxan derivative (933F); (*b*) an imidaziole derivative, tolazoline hydrochloride, and another derivative; (*c*) a mixture of equal parts of three dihydrogenated ergotoxine alkaloids (Hydergine); and (*d*) pentamethonium bromide. At the same time they studied the influence on the blood of two vasodilators: acetylcholine chloride and sodium nicotinate. Hypocoagulability was determined by Howell's and Quick's prothrombin tests and the heparin tolerance test. Very small doses were used in order to avoid sudden hypotension. The authors could observe the anticoagulative effect of all sympathicolytics either 15 minutes, 1 hour, or 3 hours after intravenous injection. The action was constant in 30 of 31 cases. The anticoagulative action is particularly noticeable after injection of the piperoxan derivative (933F), which is an adrenolytic. The authors stressed that the injection should not be given by perfusion, perfused substances having their particular action on the coagulability of the blood. The studies made on the two nonsympathicolytic vasodilators yielded quite different results. The injection of sodium nicotinate produced an intensive vasodilatation, but, after brief hypocoagulability, hypercoagulability occurred. The same effects occur after intravenous injection of acetylcholine chloride, and are probably due to hypersecretion of epinephrine provoked by acetylcholine. This research is considered important from the clinical and therapeutic points of view, and it is still in progress.

New Roentgenographic Techniques.—In 1950, Van der Plaats showed that by reducing the x-ray tube focus from 1 mm. to 0.3 mm. the blurring of the image was avoided and that the use of punctiform foci produced enlarged images having very sharp outlines. F. Layani, H. Fischgold, and L. Perles thought of combining both processes for making roentgenograms of bone, the images enlarged by means of a punctiform tube, according to Van der Plaats' method, being once more enlarged by photography. The technique of this two stage enlargement is as follows: A direct enlargement of 2.5 to 3 times is obtained with a 0.3 mm. tube, standard Kodak films, and finely grained screens. Then the roentgenogram enlarged 2.5 to 3 times by photography. Thus, a total enlargement of about 6 times is obtained; according to the authors, this is a maximum, above which images become easily blurred. On Nov. 28, 1952, the authors reported the results of this procedure to the Medical Society of the Paris Hospitals. They observed that this technique is most successful with the thinner bones of the limbs, ribs, and skull. They showed some very illustrative films. The authors stressed that studies on a large scale are in progress, but that it may be stated now that osseous architecture undergoes a transformation with aging and that this transformation is radiologically observable on the living bone with this new method.

Pierre Bourgeois, R. Lacourbe, and J. Remy described at the meeting on Feb. 27 a technique of bronchography also based on Van de Plaats' work. They observed that, with this method of enlargement of the image by 2, the widening of the image is such that, in bronchograms with iodized oil (Lipiodol) the images of bronchial arborizations become dissociated and much more visible. The authors use the following technique: a focus-film distance of 80 cm., tension of 80 to 90 kv, and exposure for 0.05 to 0.08 of a second. As contrast medium they used a mixture of heavy iodized oil with very fine pure talc, 9 gm. of talc in 20 cc. of the oil. Thus the bronchial tree fills slowly, alveolar cramming is avoided, evacuation lasts for a few days, and a thin layer persists in coating bronchial walls, permitting the study of the deformation of the mucosa. This method may also be used for the study of the pulmonary parenchyma, as in miliary tuberculosis.

Study of Lipoproteins with Electrophoresis.—In France a simple and rapid method is used to measure serum lipoproteins by the precipitation curve of serum euglobulins with relation to the pH, or Sandor's reticuloendothelial index card. (Sandor of the Pasteur Institute has made extensive studies on serum euglobulins and published a series of papers in recent years on this question.) R. Raynaud, J. R. Déshougues, P. Pasquet, and S. Di Giovanni succeeded in showing that euglobulins of pH 6 contain almost all of the serum lipids and that the level of these stable euglobulins in normal persons represents exactly the total level of circulating lipoproteins. Like other methods, this method of measurement of lipoproteins is only quantitative.

R. Raynaud and his associates have applied electrophoresis on paper to the study of atherosclerosis. The paper strips on which electrophoretic migration takes place are colored by black sudan, and the others by aminoschwartz. The sudan strips show the lipid and the aminoschwartz strips the protide fraction of the serum. Thus lipidogram and protidogram curves are obtained that permit analysis of the qualitative modification of these elements. In a normal lipidoprotidogram, the following fractions are observed: first, the alpha fraction, which is slightly noticeable and negligible with regard to albumin; second, the group of gamma fractions, including the gamma rapid and gamma slow fractions; and third, the three beta fractions, beta rapid, beta slow, and beta very slow. The most important fraction is the beta rapid. The authors observed that, in normal persons to whom a meal rich in fats was given, lipidoprotidograms taken hourly showed that the abounding giant lipidoprotidic molecules, found in the blood after the meal, progressively become lighter molecules within a few hours. They studied the lipidoprotidograms of 16 patients with atherosclerosis, 11 of which had characteristic lipodograms, that is, a quite noticeable diminution of the rapid beta fraction, the appearance of a very important slow beta fraction intermediate between the normal slow beta and the beta rapid. This abnormal slow beta fraction is always strongly colored by black sudan and extends in a rapid beta fraction. The authors were unable to learn the relation between these abnormal lipidograms and the very variable levels of lipoidemia and cholesterolemia. Moreover, 5 of the 11 patients had definite blood hypercoagulability, 2 isocoagulability, and 4 hypocoagulability. Five of 16 patients with atherosclerosis had normal lipidograms, and all 5 had hypocoagulability. The authors have come to the following conclusion: Patients with atherosclerosis with blood hypercoagulability have an abnormally high level of slow beta lipidoproteins. They were able to observe, in the same subjects, the changes in lipidograms under the influence of anticoagulant treatment; in another case, accentuation of the abnormal lipidogram coincided with a relative increase of the blood hypercoagulability. The authors note that there is a certain relation between blood coagulability and the rapidity of electrophoretic migration of serum lipoproteins in patients with atherosclerosis, but the relation is not absolute. Additional work on this subject is in progress.

Diagnosis of Hemophilia.—In *Le Sang* C. P. Soulier and M. J. Larrieu described a new antihemophilic factor, factor B. The new factor was found in study of a series of cases of hemophilia, in which two types of hemophilia were differentiated, A and B. The B form is the more serious.

SWEDEN

Campaign Against Poliomyelitis.—In a memorandum to the government, the Swedish Ministry of Health has drawn attention to the prospect of outbreaks of poliomyelitis in the near future and to means for dealing with them. It is feared that, owing to the declining immunity to poliomyelitis, there is a serious risk of severe epidemics in Sweden in the autumn of 1953 or 1954. Provided the dosage of gamma globulin is adequate, it can be counted on to provide some, though not absolute, immunity that lasts at best only five weeks. It is calculated that Sweden can produce not more than 3,000 to 4,000 protective doses from blood and not more than 6,000 to 7,000 such doses from placentas. This prophylactic treatment should be repeated at least three times during each season, if between 4 and 5 million potential patients are to be given adequate protection. But, at present, it is impossible to employ gamma globulin as an all-round prophylactic for the reason, among others, that the cost would be prohibitive. Work is now proceeding with the preparation of a quantity of poliomyelitis virus large enough to assure production of an effective vaccine, but the difficulties are such that it is not likely that wholesale immunization with such a vaccine can be provided before 1956.

The memorandom deals in detail with the measures to be taken with cases of bulbar paralysis hitherto nearly always fatal. Only a few years ago, the mortality in these cases was 80 to 90%. In Sweden it was reduced to 60 to 70% in 1947 and 1948, when operations on the larynx and postural treatment to assure better drainage came into general use. The latest figures show that in Sweden practically two-thirds of these patients may be expected to survive largely because teams of specially trained workers can now carry them through the critical period. It is calculated that a maximum of 500 cases of bulbar paralysis requiring respirators or other special devices will have to be dealt with yearly. To this end some 250 respirators, or similar contrivances for artificial respiration, will be needed on the assumption that the average duration of respirator treatment is about two months. While in such a comparatively densely populated country as Denmark cases of bulbar paralysis are concentrated in only 3 special centers equipped to deal with them, thinly populated Sweden will need 10 or 11 such centers distributed throughout the country. They must be staffed by highly specialized persons serving in mobile units. It is anticipated that much use will be made of air ambulance services including helicopters. The authorities in Denmark, Norway, and Sweden have already arranged to cooperate in this field.

In a report on the prophylaxis of certain infections by gamma globulin, Dr. Rolf Lundström, who is attached to a children's hospital as well as to the state bacteriological laboratory, notes that a Swedish preparation is already on the market but available only in small quantities in connection with measles, hepatitis, and poliomyelitis. As Vahlquist showed in 1951, with a dosage of 0.05 to 0.2 ml. per kilogram of body weight, this Swedish preparation of gamma globulin has a good mitigating effect in measles. Since the available quantity of Swedish gamma globulin is quite inadequate for dealing with poliomyelitis alone, there is no prospect of testing this remedy on scarlatina, which can now be successfully treated with penicillin.

Follow-Up of Prefrontal Leukotomies.—Between Aug. 23, 1948, and April 24, 1951, prefrontal leukotomies were performed by the surgical department of a hospital in Vadstena on patients whose subsequent fate has been investigated by Dr. J. Kryger and Dr. Niels A. Thorn, who review their findings in *Hygiea,* now incorporated in *Nordisk Medicin,* June 12, 1953. The results were not so encouraging as those of several other observers; only three of the patients were restored to normal working capacity, while seven were taken charge of by their relatives. Twelve were able to be transferred to homes for the aged, and 47 were rendered more amenable to institutional treatment. There remained as many as 43 for whom no improvement could be claimed and 2 who were worse after the operation. Eight patients died after it. A comparison of these rather meager results with the achievements of W. Freeman and J. W. Watts and those of I. Blomquist and his associates in Scandinavia gives the impression that the fate of the patient depends largely on the quality of the postoperative treatment and the care taken in reeducating each patient. The patients in the group described were, for the most part, transferred immediately after the operation to a hospital department not providing the necessary rest and quiet or adequately trained personnel. If this shortage of highly trained personnel had been overcome, the results would undoubtedly have been much better.

Spinal Anesthesia.—Recent articles in the Scandinavian medical literature show how contradictory are opinions on the merits of spinal anesthesia. In the spring of 1952, Dr. Ored Arner published a study from the Caroline Hospital (Karolinska Sjukhuset) in Stockholm. His advocacy of spinal anesthesia was based on a follow-up study of patients treated in that hospital in 1949 and also of the patients undergoing spinal anesthesia in the same hospital in the 10 year period 1940-1950 when spinal anesthesia was administered 21,230 times. He came to the conclusion that the complications occurring during or after spinal anesthesia were negligible and that neither their character nor their frequency justified any restriction in its use. He was skeptical as to the correctness of the accounts recently given of complications following spinal anesthesia, and he was in favor of adopting it in outpatient departments.

On the other hand, a monograph published on this subject in 1947 by Dr. Gunnar Thorsén gave a very different picture. In the organ of the Swedish Medical Association, *Svenska Läkartidningen,* June 12, 1953, he has returned to the charge, taking up cases one by one in which he and Arner hold conflicting opinions as to the existence or lack of a causal relationship between disasters and spinal anesthesia. It is evidently often difficult to decide this knotty point. Another approach to a solution of the problem is the study of the popularity of spinal anesthesia in different hospitals from year to year. In Arner's opinion, the number of spinal anesthesias performed has increased in Sweden since 1947. To check this opinion, Thorsén scrutinized the annual reports of several Swedish hospitals and choose the years 1947 and 1951 as samples. His list of 16 Swedish hospitals gives the number of spinal anesthesias, expressed as a percentage of all the anesthesias, performed in each of these two years. At the Caroline Hospital there has been little change; the figures for the two years are 46 and 40, respectively. But at the large Serafimer Hospital the percentage has fallen from 31 in 1947 to 1 in 1951. At three provincial hospitals the shift is in the opposite direction; at Umeo, for example, it was from 31 to 57%. But on the whole the popularity of spinal anesthesia seems to have declined between 1947 and 1951, and Thorsén argues that this decline would be found to be still more marked if a year before 1947 and a year after 1951 were used as test years. His disapproval of spinal anesthesia is also voiced in his argument that it implies residence in hospital, whereas alternative anesthetics may render such residence superfluous.

CORRESPONDENCE

TRANSVESTISM

To the Editor:—The use of surgery to minimize the difference between a patient's appearance and the appearance for which he has a neurotic craving is a novel suggestion. In their paper "Transvestism: Hormonal, Psychiatric, and Surgical Treatment" (*J. A. M. A.* **152**:391 [May 30] 1953), Hamburger, Stürup, and Dahl-Iversen propose that plastic surgery be employed to resolve such a discrepancy even in cases in which there is no objective anomaly or deformity that requires correction. If such a procedure is seriously proposed, it requires serious discussion. In discussing the etiology of transvestism, the authors suggest that it is a form of biological intersexuality. In their view, then, the surgical intervention they suggest consists actually of correction of an anomaly. It has not proved possible, to date, to associate the appearance of traits, mannerisms, or behavior patterns characteristic of one sex in persons of the other sex with any objective physical findings, either clinical or laboratory. On the other hand, endocrine dyscrasias, when they affect sexual desire and performance, merely diminish them; they do not pervert them. Physical hermaphrodites and pseudohermaphrodites seldom show overt mixtures of sexual traits or overt perversions. They usually adopt quietly the behavior appropriate to the sex that is assigned to them by their parents rather than to what might be called their biological sex, namely the sex as determined by the gonads.

In their discussion of their patient in particular and of the problem of transvestism in general, the authors adopt rather uncritically the patient's own formulation of his difficulties. The authors and their patient say that transvestites are unfortunate persons on whom a cruel fate has forced somatic sexual characteristics inappropriate to their respective psyches. This trick of fate makes these patients neurotic. This position is consistent with the biological hypothesis mentioned above, but it is a difficult one to maintain. The authors emphasize that the patient wishes to live as a woman. The data they present clearly show, however, that this is not true. The patient has no desire for sexual relations with men. There is no evidence of any maternal interest. To whatever extent one may judge from the material reported, it seems that the patient's only concern is to *look* like a woman; he does not wish to play the role of a woman in any other way. In other words, he has no interest in his social or sexual performance as a woman but, rather, wishes to *see* and *exhibit* himself as a woman. The authors do not clearly state why they consider the patient's neurosis the consequence of the frustration of his desire to be a woman. They seem to have made no effort to rule out the possibility that this desire is a symptom of his neurosis.

It is an important part of the authors' position to affirm that "The wearing of women's clothes in these cases does not aim at, and does not involve, any sexual gratification. . . . On the whole, the sexual life generally plays but a minor part." It is difficult, however, in the case presented, to accept the proposition that the sexual life really does play a minor part. The person whose problem is reported seems to have spent the major part of his constructive efforts to effecting a change in his apparent sexuality. The authors evidently mean sexual intercourse when they use the term "the sexual life." Further, if the exhibition of the male body in women's clothes (and external appearance) is single-mindedly pursued and if sexual intercourse is avoided, then one may infer that sexual gratification is obtained via exhibition rather than by intercourse. The patient's attitude toward sexual contact, homosexual or heterosexual, seems to be a neurotic aversion rather than a simple disinterest. A transvestite, whom I have known, dresses himself in women's undergarments and masturbates while gazing at himself in the mirror.

The following proposition would seem to me more reasonable. This patient, and every male transvestite, has a neurosis. One symptom of the neurosis is the wish to view and exhibit himself as a woman. The neurosis, however, causes pain. Some of the pain arises from the guilt and anxiety inherent in the neurotic process itself. Another source of pain is the frustration from and resentment against social and legal interference with the gratification of the neurotic wish. If such a man can have his genitals removed, he will (*a*) gratify his neurotic wish, (*b*) obtain legal sanction for his dressing as a woman, and (*c*) diminish a certain amount of his guilt (probably a minor amount), since he believes that he is no longer pretending to be what he is not. Freud said that neurotic patients seek psychiatric assistance not because they wish to be cured of the neurosis but because they wish to be helped to be neurotic more efficiently; that is, they wish to retain their neurotic gratifications without the necessary neurotic guilt and anxiety. Such a demand is impossible by virtue of the very nature of the neurotic process. In the case under discussion, the patient's refusal to be cured is indicated by his rejection of psychotherapy and by his refusal to accept hormonal treatment in an attempt to "alter his mentality in a masculine direction." One might anticipate, therefore, that the pleasure of the gratification of the neurotic wish will be temporary and that other aspects of the neurosis will make the patient as unhappy as he was before surgical treatment, if not more so. The reaction may commence after a latency of days, weeks, months, or years.

One must ask whether the treatment proposed by the authors is good therapy. Since the authors are not concerned with the patient's neurosis, they do not claim to be treating it and do not seem interested in following its course. Is any other form of treatment available? In a way, this question is irrelevant since the patient would not accept any other form of treatment; few transvestites will, unless they become subject to legal prosecution or become too seriously disturbed by anxiety or guilt. Is psychotherapy worth trying? In my opinion, no psychotherapeutic procedure less than intensive, prolonged, classic psychoanalysis would have any effect. If properly done, it could probably reduce the patient's agitation and the level of his unhappiness. It is not impossible that his major symptoms may decrease in frequency and urgency. If radical and rapid cures are not available, no physician will reject, in any field of medicine, uncertain, protracted, and expensive treatment, as, for example, in the treatment of cancer, leukemia, and chronic vascular disease of heart and brain.

The authors conclude "The patient will be able to move about freely among other persons, without anyone suspecting that this is not a normal young woman, but a male transvestite whose highest wishes have been fulfilled with the assistance of the medical profession and by society." In view of the exhibitionistic nature of the patient's craving, one might guess that merely passing as a woman in obscurity is what this patient would shun. He would probably continue his efforts noisily to demonstrate that a male body may have not only female clothing but a female appearance. The ethical arguments of the authors are difficult to accept or to reject. They lead, however, to a somewhat disturbing reductio ad absurdum. If a patient has a wish to die, should the physician actively comply with the patient's wish or even condone his suicide? Euthanasia has been upheld by some in patients suffering a fatal physical illness; it has not, so far as I know, been seriously suggested in mental illness.

Mortimer Ostow, M.D.
50 E. 78th St.
New York 21.

TUBERCULOSIS AMONG STUDENTS

To the Editor:—The problem of the excessive occurrence of clinical tuberculosis among American medical students has been with us a very long time. As your editorial (*J. A. M. A.* **152:**922 [July 4] 1953) indicates, sound, established procedures to reduce the degree of exposure to tuberculosis exist today and have existed for some years. It is professionally inadequate to commend those schools that have developed or are developing comprehensive tuberculosis control programs. We should unequivocally condemn any medical school that exposes its student body to groups of patients who may have undiagnosed tuberculosis. It is inadequate to commend schools that have control programs, unless we simultaneously require from them careful epidemiological studies that will adequately account for the failures under the program (From whence came the 11 cases in the seven schools having control programs?).

It is fitting that the medical profession hold a sincere interest in all research that may elicit an explanation of the nature of immunity to tuberculosis in humans. It is ill-advised to becloud the issues involved in the protection of medical students with matters still under investigation. Incidentally, the sound, established procedures that protect medical students are equally effective in the protection of patients and all staff members in the varied medical school situations. Unfortunately, the soundest procedure is the least well established—the elimination of the undiagnosed case from the teaching hospital environment.

H. S. Miller, M.D.
Health Officer
Winnetka, Ill.

ALLERGY AND PROCAINE HYDROCHLORIDE

To the Editor:—We would like to add our support to H. S. Davis and R. Bryce-Smith (*J. A. M. A.* **152:**477 [May 30] 1953) in their challenging of the conclusions reached by Criep and Ribeiro in their article "Allergy to Procaine Hydrochloride with Three Fatalities" (*J. A. M. A.* **151:**1185 [April 4] 1953). We agree with Davis and Bryce-Smith that other more likely causes of death in these cases have not been ruled out. Also an extensive experience with the use of procaine hydrochloride (Novocaine) as a local anesthetic in over 9,500 hernia operations at Shouldice Surgery, Toronto, Canada, without any evidence of an allergic reaction of minor or serious nature to the drug makes us believe that any such allergic reactions, if they occur at all, must be very rare. The usual dose of local anesthetic used in each hernia operation is between 150 and 200 cc. of 2% procaine hydrochloride. The only reactions we ever noted were of the immediate type in the form of twitchings or mild convulsive movements from which the patients invariably made an immediate uneventful recovery permitting the operation to be performed without further incident and with no postoperative sequelae. We have learned, both clinically and in animal experiments, that if twitchings develop further manipulations will aggravate them and may lead to the convulsive type of reaction. If, on the other hand, all manipulations of the patient are stopped completely for from 5 to 10 minutes, the twitchings do not become worse but usually subside quickly allowing the operation to be carried on in a normal fashion. Since we have increased the preoperative barbiturate sedative to between 2¼ to 4½ grains (0.1 gm. to 0.3 gm.) of sodium pentobarbital (Nembutal) 1½ hours prior to operation, these immediate reactions have been almost completely obliterated. There has been only one mild convulsive reaction in the last 4,500 cases.

For the first 7,000 cases, an intradermal test with 2% procaine hydrochloride was carried out preoperatively. Usually there was no skin reaction, but, in a number of cases, an area of reaction up to 2 in. in diameter developed. Despite this degree of skin reaction, the operations were carried out with procaine as the local anesthesia. In no case was there any suggestion of an allergic or anaphylactic reaction or any increased tendency to the early type twitching reaction. None of the 11 patients in our series who had a convulsive type of reaction had a positive skin reaction; in fact, in each of these cases there was no reaction to the intradermal injection of procaine hydrochloride. Because of this lack of relationship between the intradermal reaction to procaine hydrochloride and the patients' general reactions to it, these intradermal tests have been discontinued as a routine procedure. No epinephrine has ever been used with the procaine solutions in Shouldice Surgery both because this might obscure bleeding points, which might later produce hematomas, and because there is evidence that in some cases the combination can have deleterious effects on the cardiovascular system. Reaction is apparently commoner to epinephrine than to the procaine hydrochloride (Campbell, E. B.: *Canad. M. A. J.* **62:**364, 1950). Our analysis of the cases reported by Criep and Riberio and our experience with procaine lead us, therefore, to believe that the fatalities they reported were actually not due to a procaine allergy.

Ernest A. Ryan, M.D., Ph.D., F.R.C.S.(C)
Surgeon, Shouldice Surgery
E. Earle Shouldice, M.D.
Chief Surgeon, Shouldice Surgery
626 Church St., Toronto, Canada.

ULCERATION OF SKIN FOLLOWING USE OF ARTERENOL

To the Editor:—The article by Uricchio, Salenda, and Cutts (*J. A. M. A.* **152:**607 [June 13] 1953) is very timely. It is my opinion that tissue necrosis following intravenous administration of arterenol in the leg veins occurs very commonly. Not only tissue necrosis occurs, but actual necrosis of the vein and concurrent venospasm and arteriospasm of the vessels of the same extremities develop and cause ischemic necrosis of the distal parts of the extremities. As the authors suggest, there was venospasm and also spasm of the vasovasorum causing necrosis of the vessel in their patient. The underlying reason for this, in my opinion, is that the venous circulation of the lower extremities is sluggish and, therefore, results in a higher concentration of the drug in the leg veins. To date, I know of this type of necrosis occurring in the lower extremities after arterenol was given in five cases. My experience in administering the medicament via the veins of the upper extremities has been very satisfactory, and at no time has necrosis of tissue or veins occurred unless there was subcutaneous spillage. This information ought to be widely disseminated because arterenol is very useful and may, under certain circumstances, be life-saving.

Eugene Bifulco, M.D.
131 Fulton Ave., Hempstead, N. Y.

AMEBIC PATIENT 13 DAYS OLD

To the Editor:—A baby girl, born on Feb. 8, 1952, had numerous vegetative forms of Endameba histolytica in loose stools examined in our laboratory on Feb. 21, 1952. Numerous leukocytes were seen too. Generally, bacillary dysentery is believed to have a sudden, acute onset, while amebic dysentery is believed to have a long incubation period of months or years. Amebic dysentery appeared in this breast-fed infant by the 13th day of life; the incubation period could not, therefore, have been more than 13 days. We saw by then not only free living amebic forms, three to five per field, but signs of inflammation and pus. On Nov. 28, 1952, the feces of the same baby were again examined in our laboratory, and numerous free living amebic forms were still present. The infant's mother was examined on Nov. 20, 1952, and was found to have free living forms of E. histolytica too.

Josejf Weiser, D.Sc.B.
Rotshild Blvd., Hadera, Israel.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Sherman Anti-Trust Act in Relation to Medical Society Sponsored Prepaid Medical Care Plan.—This was an action by the United States against the Oregon State Medical Society and others for an injunction to prevent and restrain violations of the Sherman Anti-Trust Act, the Government asserting that a conspiracy existed to restrain and monopolize the business of providing prepaid medical care in Oregon and to restrain competition between physician-sponsored prepaid medical plans. The District Court dismissed the complaint (United States v. Oregon State Medical Society, 95 F. Supp. 103; *J. A. M. A.* 136:1067 [July 14] 1951) and the Government appealed directly to the Supreme Court of the United States.

This controversy, said the Supreme Court, centers about two forms of "contract practice" of medicine. In one, private corporations organized for profit sell what amounts to a policy of insurance by which small periodic payments purchase the right to certain hospital facilities and medical attention. In the other, railroad and large industrial employers of labor contract with one or more physicians to treat their ailing or injured employees. Both forms of "contract practice," for rendering the promised medical and surgical service, depend upon physicians or panels of physicians who cooperate on a fee basis or who associate themselves with the plan on a full or part time employment basis. Objections of the organized medical profession to contract practice are both monetary and ethical. Such practice diverts patients from independent practitioners to contract physicians. It tends to standardize fees. The ethical objection has been that intervention by employer or insurance company makes a tripartite matter of the physician-patient relation. Since the contract physician owes his employment and looks for his pay to the employer or the insurance company rather than to the patient, he serves two masters with conflicting interest. In many cases companies assume liability for medical or surgical service only if they approve the treatment in advance. There was evidence of instances in which promptly needed treatment was delayed while company approval was being obtained and in which a lay insurance official disapproved treatment advised by a physician.

In 1936, five private associations were selling prepaid medical certificates in Oregon and the physicians of that State, alarmed at the extent to which private practice was being invaded and superseded by contract practice, commenced a crusade to stamp it out. The campaign was bitter on both sides. State and county medical societies adopted resolutions and policy statements condemning contract practice and physicians who engaged in it. They brought pressure on individual physicians to decline or abandon it. They threatened expulsion from medical societies, and one society did expel several physicians for refusal to terminate contract practice. In 1941, however, seven years before the present action was commenced, there was an abrupt about-face on the part of the organized medical profession in Oregon. The organized physicians completely reversed their strategy, and, instead of trying to discourage prepaid medical service, decided to render it on a nonprofit basis themselves. In that year, Oregon Physicians Service, one of the defendants in this action, was formed. It is a nonprofit Oregon corporation, furnishing prepaid medical, surgical, and hospital care on a contract basis. After seven years of successful operation, the Government brought this suit against the physicians, their professional organizations, and their prepaid medical care company, asserting two basic charges: first, that they conspired to restrain and monopolize the business of providing prepaid medical care in the State of Oregon and, second, that they conspired to restrain competition between physician-sponsored prepaid medical plans within the State of Oregon in that Oregon Physicians Service would not furnish prepaid medical care in an area serviced by a local society plan.

We find not the slightest reason to doubt the genuineness, good faith, or permanence of the changed attitude and strategy of these defendant-appellees that took place in 1941, said the Supreme Court. It occurred seven years before this suit was commenced and, so far as we are informed, before it was predictable. It did not consist merely of pretensions of promises but was an overt and visible reversal of policy, carried out by extensive operations that have every appearance of being permanent because wise and advantageous for the physicians. The record discloses no threat or probability of resumption of the abandoned warfare against prepaid medical service and the contract practice it entails. We agree with the trial court that conduct discontinued in 1941 does not warrant the issuance of an injunction in 1949. Striking the events prior to 1941 out of the Government's case, the court continued, except for purposes of illustration or background information, little of substance is left. The case derived its coloration and support almost entirely from the abandoned practices. A parade of local medical society members from all parts of the state, apparently reputable, credible, and informed professional men, testified that their societies now have no policy of discrimination against private health associations and that no attempts are made to prevent individual physicians from cooperating with them. Members of the governing councils of the state and Multnomah County societies testified that since 1940 there have been no suggestions in their meeting of attempts to prevent individual physicians from serving private associations. The manager of Oregon Physicians Service testified that at none of the many meetings and conferences of local societies attended by him did he hear any proposal to prevent physicians from cooperating with private plans. If the testimony of these many responsible witnesses is given credit, no finding of conspiracy to restrain or monopolize this business could be sustained. Certainly, the Supreme Court concluded, we cannot say that the trial court's refusal to find such a conspiracy was clearly erroneous.

The other charge, continued the court, is that defendants conspired to restrain competition between the several physician-sponsored organizations with the State of Oregon. Apparently, if a county was provided with prepaid medical care by a local society, the state society would stay out or, if the county society wanted to inaugurate a local plan, the state society would withdraw from the area. No matter what organization issues the certificate, it will be performed, in the main, by the local physicians. The certificate serves only to prepay their fees. The result, if the state association should enter into local competition with the county association, would be that the inhabitants could prepay medical services through either one of two medical society channels. There is not the least proof that duplicating sources of the prepaid certificates would make them cheaper or more available, result in an improved service, or have any beneficial effect on anybody. Through these nonprofit organizations, the physicians of each locality, in practical effect, offer their services and hospitalization on a prepaid basis instead of on the usual cash fee or credit basis. To hold it illegal because they do not offer their services simultaneously and in the same locality through both a state and a county organization would be to require them to compete with themselves in the sale of certificates. Under the circumstances proved here, the Supreme Court concluded, we cannot regard the agreement by these nonprofit organizations not to compete as an unreasonable restraint of trade in violation of the Sherman Act.

Accordingly the judgment of the trial court dismissing the plaintiff's complaint was affirmed. *United States v. Oregon State Medical Society, et al., 72 S. Ct. 690 (1952).*

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Otolaryngology, Chicago

57:371-474 (April) 1953

*Cardiac Arrest from Otolaryngologist's Viewpoint. R. M. Hosler.—p. 371.
Pathogenesis and Histopathology of Chronic Adhesive Otitis. L. Ojala.—p. 378.
Illness and Death of Afranius Burrus. J. Körbler.—p. 402.
Thiopental with Succinylcholine and Topically Applied Tetracaine: More Ideal Anesthetic for Peroral Endoscopy. R. Ament and H. Meyers. p. 405.
*Preanesthetic Sedation of Children: Analysis of Effects for Tonsillectomy and Adenoidectomy. J. E. Eckenhoff.—p. 411.
"I Scarce Was Sure I Heard You": Saga of Work in Prevention, Conservation, and Rehabilitation By and For the Hard of Hearing. E. P. Fowler.—p. 417.
Osteitis of Sphenoid Sinus. L. L. Haas.—p. 427.
New Pneumophone: An Economical and Simple Diagnostic Instrument for Rapid Quantitative Determination of Eustachian Tubal Function. E. M. Herzon.—p. 437.

Cardiac Arrest During Otolaryngological Operations.—Sudden cessation of the heart beat in the operating room can occur with local anesthesia as well as with general anesthesia. The cause of this disaster is a lack of oxygen in the vital tissues, but some of the predisposing factors are the position of the patient, decreased vital capacity, tracheal obstruction, poor oxygenation, anemia, anxiety, insufficient atropine, shock, poor cardiac filling, torsion of the heart, excessive accumulation of carbon dioxide despite good oxygenation, errors of judgment, excessive preanesthetic and anesthetic drugs, and cardiac disease. Frequently, the patient has been given too many drugs and too little oxygen. There are two steps in resuscitation, namely, (1) reestablishment of the oxygen system and (2) restoration of the heart beat. The first step is for an alert anesthetist to place a tube into the trachea and deliver 100% oxygen into the lungs under positive pressure. Once the lungs are adequately aerated, the left side of the chest should be opened and the heart and the intact pericardium squeezed upward against the sternum. If oxygenated blood is being delivered manually to the brain by the hydrodynamic pump, the brain can be kept viable indefinitely. If the heart at this stage is not beating rhythmically, the next step is to insert a large rib retractor, quickly open the pericardium, and immediately resume massage while the operating table has been lowered to about 10 degrees with the patient in the Trendelenburg position. If, after a considerable period of adequate massage, the heart does not start beating, about 4 to 5 cc. of a 1:10,000 epinephrine solution should be injected into the right ventricle and massage continued. If the heart is not in stand-still but in ventricular fibrillation, an electric shock is usually required and should be furnished by a defibrillating machine. The major causes for failure to restore the heart beat are poor aeration of the lungs, ineffectual manual massage, retention of carbon dioxide, and intrinsic heart disease. Planning for the eventuality of cardiac arrest is one of the best ways to prevent its occurrence. An illustrative case of a 5-year-old patient subjected to a tonsillectomy and adenoidectomy under general anesthesia is described. The child made an uneventful recovery.

Preanesthetic Sedation of Children.—Many otolaryngologists avoid sedation because of the danger of depression of the cough reflex and the attendant hazard of aspiration of blood and debris into the lungs. Other pediatricians and psychiatrists believe that undesirable personality changes may be related to inadequate preoperative preparation and sedation. The effects of preanesthetic medication, including atropine and scopolamine alone or in several combinations with pentobarbital and morphine, were studied in 1,500 children subjected to a tonsillectomy and adenoidectomy. The incidence of crying prior to anesthesia could be sharply reduced by the addition of a barbiturate to the belladonna drug. Respiratory depression and cyanosis appeared more frequently if morphine and pentobarbital were included in preanesthetic medication, but no evidence was obtained that reflexes were depressed unduly postoperatively. Scopolamine is a better sedative than atropine. Morphine should not be employed in preparation for tonsillectomy and adenoidectomy because it diminished the respiratory force whenever partial respiratory obstruction occurred in the course of oropharyngeal insufflation anesthesia. A barbiturate can and should be administered. Children less than 5 years old are most disturbed by operation and anesthesia. The facts presented argue that sedatives should be given before children are anesthetized. Preanesthetic sedation may increase the risk of respiratory depression during the operation. With inadequately trained anesthetic personnel, psychic trauma is to be considered of secondary importance and use of sedatives is to be avoided.

A.M.A. Arch. Surgery, Chicago

66:397-578 (April) 1953. **Partial Index**

Time and Tide. G. B. Packard.—p. 401.
Are Certain Diseases Associated with Specific Blood Groups of Rh Antigens? C. W. Mayo and J. O. Fergeson.—p. 406.
Surgery in Colonic Diverticulitis. R. J. Patton.—p. 410.
Surgical Treatment of Stricture of Common and Hepatic Bile Ducts: 28 Year Study. W. Walters and A. H. Kelly.—p. 417.
Exploration of Common Bile Duct: Analysis of 100 Cases. S. B. Childs and A. E. Prevedel.—p. 423.
Liver Function as Determined by Serum Cholinesterase *Activity: Studies in Patients Undergoing Surgery on Biliary Tract. H. E. Snyder,* C. D. Snyder and L. D. Bunch.—p. 426.
Treatment of Complications of Plantar Warts. D. W. Robinson.—p. 434.
*Intercostal Dissection and Radical Mastectomy, W. B. Hutchinson.—p. 440.
Basting Axillary Flap for Wounds of Radical Mastectomy. E. L. Keyes, B. O. Hawk and C. S. Sherwin.—p. 446.
*Spontaneous Intracranial Hemorrhage in Children: Report of Eight Cases in Children 15 Years of Age or Younger. W. P. Ritchie and G. Haines.—p. 452.
*"Plication": Method of Reducing Caliber of Vein Grafts. E. J. Schmitz, L. R. Sauvage, E. A. Kanar and H. N. Harkins.—p. 461.
Surgical Division of Patent Ductus Arteriosus. W. J. Potts.—p. 468.
Late Peripheral Arterial Embolectomy. J. H. Olwin, W. S. Dye and O. C. Julian.—p. 480.
Evaluation of Endarterectomy. W. F. Barker and J. A. Cannon.—p. 488.
Reconstruction of Burn-Scar Deformity. H. M. Trusler, S. Glanz and T. B. Bauer.—p. 496.
Anomalies of Posterior Tibial Tendon: Cause of Persistent Pain About Ankle. R. K. Ghormley and I. M. Spear.—p. 512.
Surgical Treatment of Cushing's Syndrome: Report of One Case and General Considerations. M. E. Johnson and F. R. Harper.—p. 517.
Substitution of Excluded Rectosigmoid Colon for Urinary Bladder: Preliminary Report. L. M. Kinman, D. Sauer, V. T. Houston and W. F. Melick.—p. 531.
Electrolyte Loss by Postoperative Nasal-Gastric Suction. F. W. Taylor.—p. 538.

Intercostal Dissection and Radical Mastectomy.—Hutchinson feels that the several modes of spread of carcinoma of the breast have been largely overlooked owing to the misconception that the lymphatic system is an autonomous circulatory system until it communicates with the major blood vessels. Blood and lymphatic systems are closely related at the point of tissue-fluid movements. This probably explains widespread blood-borne metastasis in cases in which there is a small early lesion and normal lymph nodes. In the 81 cases under consideration the operability was determined by excision and

---

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individual subscribers, provided they reside in continental United States or Canada. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover only the last 11 years, and no photoduplication services are available. No charge is made to members, but the fee for other borrowers is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

frozen section study of the primary breast tumor. Supraclavicular lymph nodes with questionable metastases were removed in a few cases. In the absence of supraclavicular metastasis, a Halsted radical mastectomy was done and was followed by an exploration of the first three interspaces to obtain information concerning the dissemination of carcinoma in the lymphatic system outside of the axilla. This is not to be regarded as a treatment of internal mammary spread. It was found that one-fourth of the persons on whom the author operated were exposed to a useless procedure, since fatal metastatic disease had been disseminated more widely than had been realized. He gained the impression that the location of the lesion really makes little difference; if it has a spreading potential, it spreads. In patients whose breast tumors had been recognized for one month or less, 15% had a spread to the intercostal nodes. The author disagrees with Urban, who advises en bloc internal mammary dissection only for lesions of the inner half of the breast, as the region of spread of a given tumor is unknown. Of 18 patients with internal mammary spread, 9 are already dead while 7 are alive but uncured; only 2 remain without signs of residual disease. This indicates the futility of radical mastectomy as a curative procedure when spread to the internal mammary lymphatics has already occurred. If surgical treatment of cancer of the breast is undertaken, it should include the axilla, supraclavicular and retroclavicular structures, and en bloc dissection of the internal mammary chain and of the anterior mediastinal structures. The inability of the surgeon to remove completely the lymphatics and lymph nodes in these areas is obvious. The cancer is incurable if at the time of the initial operation it has extended to the supraclavicular or the internal mammary nodes. Pathologists and surgeons will accomplish jointly more by attempting to recognize and eradicate the precancerous breast lesions than by radical surgical removal of breast cancer.

Spontaneous Intracranial Hemorrhage in Children.—The report concerns spontaneous intracranial hemorrhage in eight children, 15 years of age or younger. Two deaths and six recoveries resulted. Angiomatous malformations were present in the four cases in which the cause was definitely proved. Aneurysm of the intracranial portion of the internal carotid artery was the diagnosis in one other case. The cause could not be established in the remaining three cases. Two deaths were caused by massive and rapid hemorrhage. Spontaneous subarachnoid hemorrhage in children arises as a rule from a congenital vascular anomaly, which is usually angiomatous in nature. Successful treatment depends on accurate localization and surgical intervention. Angiography has been of great value in the diagnosis of these lesions.

Plication to Reduce the Caliber of Vein Grafts.—In the course of their laboratory experiments with venous grafts the authors became aware of the need for a method that would reduce the diameter of an oversized vein graft. The following method was evolved: After the graft was anastomosed and distended with blood under arterial pressure, the diameters and circumferences of the graft and recipient vessel were determined by caliper and string measurements. The amount of reduction necessary was calculated, and the appropriate width of vein wall was measured with calipers. The vein graft was then plicated by means of interrupted Lembert-type sutures placed about 2 mm. apart. By use of oiled 6-0 nonabsorbable surgical (silk) suture material on a sharp atraumatic needle, it was possible to place most of the sutures without penetrating the intima. The sutures were so placed that the entire width of vein wall, which was infolded, was encompassed by each stitch. The authors got satisfactory results with this method in reducing the diameter of fresh inferior vena cava autografts implanted into the abdominal aorta of 10 adult dogs and 12 weanling pigs. Similar groups of animals with unplicated grafts were used as controls. Examination of the plicated segments of vein grafts from seven days to six months after operation revealed that the sutures were covered by endothelium, the vessel walls were thickened, and the line of plication was barely discernible. The incidence of thrombosis in plicated grafts was greatly reduced.

American Journal of Mental Deficiency, Albany, N. Y.

57:533-729 (April) 1953. Partial Index

Neurosis in a Mental Defective. J. R. Williams and L. Belinson.—p. 601.
Cutis Verticis Gyrata: Review with Report of Seven New Cases. S. Polan and T. Butterworth.—p. 613.
*When Should the Seriously Retarded Infant be Institutionalized? D. H. Jolly.—p. 632.
Clinical and Genetical Study of Microcephaly. J. A. Book, J. W. Schut and S. C. Reed.—p. 637.
Study of Effect of Glutamic Acid on Delinquent Adult Male Mental Defectives. A. A. Kurland and C. A. Gilgash.—p. 669.

When Should a Retarded Child Be Institutionalized?—Earlier institutionalization of the severely retarded child has been the trend for the past 15 years. While the total of first admissions and the total number of patients have increased gradually by less than one-third, first admissions before the age of 5 have almost tripled. Jolly feels that this trend is largely due to earlier recognition and to advice from physicians for immediate institutionalization. It has been economically impossible, however, to provide additional crib facilities at the rate demanded. Consequently long waiting lists have been built up in most institutions that accept infants and obstetricians and pediatricians should reevaluate their stand on immediate institutionalization. To about the age of 3, the physical care of most retarded children is no greater than that of a normal child of the same age. It is usually better to have the parents work out their emotional conflicts gradually, while caring for the child at home, during the first years of life. Under the guidance of a physician who will take time to explain the possible causes of the defect, give an honest prognosis, and emphasize the positive features of institutional life, the parents will come to accept their misfortune and to see the logic of separation. The request for institutionalization will then come from the parents themselves and will have complete acceptance. The author feels that the optimal time for institutionalization is seldom, if ever, in early infancy.

American Surgeon, Atlanta, Ga.

19:397-490 (May) 1953

Bleeding as Complication of Diverticulosis or Diverticulitis of Colon. W. C. Quinn and A. Ochsner.—p. 397.
*Tantalum Gauze in Presence of Infection: Clinical Experience. A. R. Koontz.—p. 403.
Persistent Pain Following Cholecystectomy. H. C. Myers.—p. 412.
Gaseous Distention of Gastrointestinal Tract—Its Significance, Prevention and Treatment. W. H. Prioleau and J. M. Stallworth.—p. 418.
Hypoparathyroidism Following Thyroid Operations. J. W. Patterson and G. A. Higgins.—p. 423.
Prevention of Postoperative Shock. J. T. Stage.—p. 432.
Surgical Lesions of Neck. A. S. Jackson.—p. 436.
Surgical Repair and Rehabilitation of Cleft Palate and Harelip Patient. G. T. Howard Jr.—p. 441.
Fluid and Electrolyte Balance in Surgical Patient. R. S. Wilson, F. T. Wallace and J. A. Whiting.—p. 454.
Mucinous Adenocarcinoma of Urachus. T. G. Orr Jr. and C. A. Hardin. —p. 458.
Sacrococcygeal Teratoma (Including Case Report). K. C. Sawyer, R. E. Orr and M. J. Baskin.—p. 463.
Neurofibroma of Jejunum with Perforation: Case Report. F. B. Warshauer and R. E. Nelson.—p. 467.
Lymphosarcoma of Duodenum Arising in Periampullary Region: Case Report. I. W. Kaplan, L. T. Tyler and S. L. Canale.—p. 473.
Choledochoduodenal Fistula: Report of Two Cases Due to Duodenal Ulcer. C. L. Cogbill and H. P. Roth.—p. 480.

Tantalum Gauze in Presence of Infection.—Tantalum gauze and wire (both monofilament and braided) cause no trouble in the presence of infection, such as persistent sinus tracts or buried infected granulomas, unless other foreign bodies, such as silk or cotton are also present. If implanted tantalum gauze becomes exposed, granulations will grow through it and the wound will heal spontaneously unless there is an associated dead space. Abundant subcutaneous tissue should be left whenever possible under the skin flaps used to cover tantalum. In potentially infected ventral hernia wounds, the peritoneum should be closed with braided tantalum wire (which does not cut through). Monofilament or braided tantalum wire may be used to suture the tantalum gauze in place. Absorbable surgical suture should be used for ligatures. Silk and cotton should not be used in such wounds (except possibly in the subcutaneous tissue), as they cause trouble in the presence of infection. Drains should be used to prevent the collection of serum in extensive dissection of skin flaps. Koontz used a piece of tantalum gauze in several cases as large as 12 by 12 in. (30 by 30 cm.), almost covering the entire abdominal wall, and obtained healing.

California Medicine, San Francisco

78:417-486 (May) 1953

Antibiotics and Chemotherapy. S. A. Waksman.—p. 417.
Double Contrast Visualization of Joints. L. O. Parker and A. A. deLorimier.—p. 424.
Vesicular and Bullous Diseases of Skin: Cytologic Diagnosis. G. D. Baldridge and A. J. Leeb.—p. 428.
Primary Carcinoma of Gallbladder: Review of 173 Cases. L. J. Tragerman.—p. 431.
Does Your Hospital Need a Recovery Room? T. W. McIntosh.—p. 438.
Carcinoma of Prostate: Diagnosis and Treatment. J. C. Presti.—p. 440.
Controversial Problems in Adenotonsillectomy. J. W. Arnold.—p. 444.
Anesthesia in Cardiac Operations. J. S. Denson, S. I. Joseph and H. Miller.—p. 450.
Transorbital Lobotomy: Its Use in Relapsing Psychotic States. A. E. Bennett and F. C. Cesarman.—p. 453.
Role of Psychotherapy in Allergy: Credits and Debits. E. A. Sirmay. —p. 456.
Female Infertility: Present Status of Treatment. E. J. Krahulik.—p. 459.
Diaphragmatic Herniation Through Space of Morgagni. D. F. Rowles and G. L. Crenshaw.—p. 461.

Cancer Research, Chicago

13:309-396 (April-May) 1953. **Partial Index**

Carbohydrate Metabolism of Leukocytes: Review. W. S. Beck and W. N. Valentine.—p. 309.
Fungi in Human Neoplastic Tissue. H. Mescon, J. W. Eiman and A. M. Kligman.—p. 318.
Effects of Fractionated Doses of X-Radiation on Normal and Tumor Tissue. L. C. Fogg and R. F. Cowing.—p. 321.
Transient Regression of Murine Spontaneous Mammary Tumors with Analogs of Dimethyldiaminobenzene. D. W. Woolley.—p. 327.
Immunological Properties of Carcinogen-Protein Conjugates Containing 4-Dimethylaminostilbene and Its 2'-Methyl Analog. H. J. Creech, H. F. Havas and J. Andre.—p. 335.
Epidermal Carcinogenesis in Mouse Induced by One, Two, or Three Applications of 9,10-Dimethyl-1,2-Benzanthracene Followed by Repeated Applications of Croton Oil: New Hypothesis of Mechanism of Carcinogenesis. P. Shubik and A. C. Ritchie.—p. 343.
Heterologous Transplantation of Human Lung Cancer. H. S. N. Greene. —p. 347.
Assay of Spontaneous and Transplanted Mammary Tumors for Mammary Tumor Agent. J. J. Bittner.—p. 361.
Macromolecular Particles of Normal and Regenerating Rat Liver. M. L. Petermann, N. A. Mizen and M. G. Hamilton.—p. 372.
Age of Tumor-Bearing Hosts as Factor Conditioning Transmissibility of Rous Sarcoma by Filtrates and Cells. F. Duran-Reynals and P. M. Freire.—p. 376.
Growth of Human Tumors in Cortisone-Treated Laboratory Animals: Possibility of Obtaining Permanently Transplantable Human Tumors. H. W. Toolan.—p. 389.

Diseases of Chest, Chicago

23:477-594 (May) 1953

Diagnosis of Cardiospasm. A. M. Olsen, C. B. Holman and H. A. Andersen.—p. 477.
Physiologic Evaluation of Patients Before and After Mitral Commissurotomy. R. S. Cosby, G. C. Griffith, D. C. Levinson and others. —p. 499.
Tibione in Treatment of Pulmonary Tuberculosis. S. S. Cohen, R. H. Frost and Wen-Yao Yue.—p. 507.
Domiciliary Treatment of Pulmonary Tuberculosis: Seton Hospital Home Care Program. A. Kane, S. Pollak and H. Brigham.—p. 518.
*Roentgenographic Aspects of Complete and Incomplete Pulmonary Infarction. M. J. Smith.—p. 532.
Cervical Sympathetic Stimulation Caused by Carcinoma of Lung. O. C. Brantigan.—p. 547.
Tuberculosis and Histoplasmosis in Foreign Students Entering Our Colleges. W. T. Palchanis.—p. 552.
Anatomic-Pathologic Comparative Study of Pulmonary Tuberculosis Deaths With and Without Streptomycin. H. O. Puelma and S. R. Ebensperger.—p. 558.
Tracheopathia Osteoplastica: Report of Case. W. A. Lell.—p 568.
Report of Case of Right Pneumothorax Following Induction of Pneumoperitoneum. C. Vysniauskas and H. H. Brueckner.—p. 572.
Spontaneous Hemopneumothorax with Early Thoracotomy: Case Report. J. Boss, D. Dugan and J. E. Farber.—p. 577.
Tuberculosis of Tongue Treated with Streptomycin and PAS. E. R. Wiese.—p. 582.

Complete and Incomplete Pulmonary Infarction.—The roentgenographic aspects of pulmonary infarction in 10 women and 15 men between the ages of 9 and 79 years are reported. The pulmonary infarcts in these patients were subdivided into the complete and incomplete types according to the classification of Hampton and Castleman. Of the 25 patients, 22 had the complete type, with a sequence in the involved lung area consisting of filling of the alveoli with blood, while larger units such as the alveolar sacs and atria remain filled with air for as long as 24 hours. At the end of 24 hours necrosis of the alveolar walls and degeneration of the red cells starts. Organization begins in the second week and may last for months until a fibrous scar remains. The incomplete infarct begins similarly, with edema, fluid, and red and white blood cells in the alveoli; this does not progress to alveolar wall destruction and heals by resolution in two to four days. There are both primary and secondary manifestations of complete infarcts. The primary signs are those produced by the infarct itself and the secondary signs by the effects of the infarct. The odd shape of a homogenous density, pyramidal or triangular, round, oval or irregular, was observed in the author's cases, and was helpful in making the diagnosis of infarction. The location is variable. According to reports in the literature, there seems to be a predilection for the lower lobe of the right lung. The author's observations supported this view, the right lung being the site of an infarct two times as often as the left, with the right lower and middle lobes being involved in 44% of the cases. Odd and round shadows may be caused by superimposition of multiple infarcts and should be "dissected" by multiple films, including spot films. The infarct is always in contact with one or more pleural surfaces; the cardiac margin is rounded or "hump-shaped." The long diameter is always parallel to the largest pleural surface involved. Other workers have described secondary signs of pulmonary emboli, such as clouding in the region of the costophrenic angle on the side of the infarct, accentuation of the hilar vessels on the side of the lesion, the presence of a prominent pulmonary conus, and elevation of the diaphragm on the affected side. Some of these signs were observed occasionally by the author, but are usually unreliable. Pleural effusion may or may not be secondary to an infarct. In contrast to the experience by other workers, the pleural effusion observed by the author in six of his cases was not of greater roentgenographic dominance than the parenchymal density; in only one patient was the amount of fluid large, and not even in the latter was the density of the infarct hidden by the fluid. In the three cases of incomplete infarction, faint, sharp, short lines were seen in chest films coincidentally with the clinical occurrence of pulmonary emboli. These were situated transversely or obliquely and were not visible on roentgenograms previously; they changed character in two to seven days. The shadows believed to represent incomplete infarcts occurred in the middle third of the lungs and the bases, were often single, and were not associated with abdominal lesions. The experience in interpreting these linear shadows is limited, and further studies are necessary to verify the author's suggestion. The concept of the incomplete infarct probably overlaps that of the pulmonary embolus without infarction. Embolism without infarction, or probably with incomplete infarction, occurs very frequently; an area of pulmonary ischemia may be a roentgen sign of this situation, as described by Westermark and others. Clinical evidence of a pulmonary embolus associated with negative roentgenographic evidence may also warrant this diagnosis.

Eye, Ear, Nose & Throat Monthly, Chicago

32:191-224 (April) 1953

Early Diagnosis of Adult Primary Glaucomas. H. S. Sugar.—p. 191.
Management of Nerve Deafness. J. Sataloff.—p. 196.
*Experimental Hydrosulphosol Therapy of Thermal and Chemical Ocular Burns in Rabbits. W. H. Havener, H. F. Falls and H. B. McGee. —p. 201.
Streptomycin Therapy of Tuberculous Otitis Media: Evaluation and Case Reports. L. L. Titche.—p. 203.

Sulfhydryl Therapy of Ocular Burns in Rabbits.—Comparable corneal burns were produced in both eyes of 10 rabbits. Six rabbits received thermal (actual cautery) burns varying in extent from 2 mm. to an entire quadrant of the cornea. The corneas of two rabbits were cauterized with a single drop of 28% ammonium hydroxide applied for 30 seconds and then washed for two minutes with isotonic sodium chloride solution. A similar application of glacial acetic acid was administered to the corneas of two rabbits. All of the corneal burns were quite severe and extended deeply into the stroma. A generous amount of a sulfhydryl compound (Hydrosulphosol) was instilled daily into each right eye of the animal and a comparable quantity of castor oil into the left eye. A binocular pressure bandage was applied daily after the instillation of a drop of 30% sodium sulfacetimide in order to prevent the development of extensive purulent ulcers. The daily observation of the control and treated eyes did not reveal any material differences between the course and end result of corneal burns treated with the sulfhydryl compound and the control series. It is possible that a potential hazard exists in the employment of sulfhydryl therapy, inasmuch as anaerobic bacterial growth stimulation and delayed wound healing have been experimentally reported by other workers.

Georgia Medical Association Journal, Atlanta

42:159-224 (April) 1953

Asynchronous Bilateral Benign Papilloma of Ureter with Subsequent Cancer of Ureteral Stump, Bladder and Vagina. E. Felber.—p. 198.

Factors Influencing Prognosis of Carcinoma of Colon. J. D Martin. —p. 201.

Tumors of Neck. R. L. Brown.—p. 205.

*Car Window Fractures of Left Elbow. A. S. Carswell.—p. 211.

Constriction Ring Dystocia: Report of Two Cases Rather Intensively Studied Among 17,000 Labors. R. Torpin.—p. 212.

*Residual Typhus Fever in Georgia. H. Greene and J. E. McCroan Jr. —p. 216.

Car Window Fractures of Elbow.—Car window fractures of the left elbow are often referred to as "side-swipe" fractures. Most of them are sustained by drivers of automobiles, while their elbow is protruding from the car window. Children sustain such fractures in school buses or other vehicles. "Side-swipe" fractures range from simple fracture to complete traumatic amputation of the left arm. They include compound fractures of both bones of the forearm, compound fractures of the humerus, comminuted fracture dislocation of the elbow, and avulsion of the elbow joint, including the lower third of the humerus and the proximal portion of the ulna and the radius. At the University Hospital in Augusta, Ga., 20 cases of injuries received while the arm was protruding from the car window were treated over a three year period (1948-1951). In several cases this was not the only injury received, but it was often the more disabling. The histories of three patients with this type of fracture are reported. Counteracting the shock is of primary importance. Thorough débridement, wound irrigation, and administration of tetanus antitoxin and chemotherapeutic agents are other essential measures. Some form of intramedullary fixation or the use of bone screws may be required. For treating fracture of the humerus a hanging cast may be preferable to open reduction. Urging car drivers and passengers not to rest arms on the ledges of their car windows is the most important factor in the prevention of these disabling injuries.

Residual Typhus Fever in Georgia.—In 1937 a typhus control program was organized by the Department of Public Health. The earliest measures employed to combat the disease consisted of rat eradication, rat-proofing of buildings, and promotion of community projects for better refuse collection and disposal. These measures were effective in local areas but few communities participated in the program. In 1945 DDT insecticide dust became available, and with the assistance of federal funds a greatly expanded control program was possible. The application of DDT dust to rat runs, harborages, and burrows was aimed directly at the principal vector, the Indian rat flea (Xenopsylla cheopis). The success of this phase of the program is indicated by the decline in the number of human infections and by a significant drop in the percentage of rat bloods showing murine typhus fever antibodies. The number of reported human cases dropped from 1,111 in 1945 to 58 in 1951, and a corresponding decrease was observed in the percentage of rats with positive blood. The destruction of the domestic rat was made much more effective by the introduction of a new rodenticide. Differentiation between typhus and other febrile diseases is highly desirable because of the control measures required. For instance, although typhus and Rocky Mountain spotted fever usually respond alike to antibiotic therapy and react in an almost identical manner in the Weil-Felix test, the two diseases are dissimilar with regard to the tick vector. They can be definitely differentiated only by means of complement fixation tests. Leptospirosis may likewise be mistaken for typhus unless laboratory tests are carried out. With regard to the prospect of complete eradication of typhus, the authors say that, as with other diseases dependent on a complicated host-parasite relationship for existence, the process of transmission becomes more and more difficult as the number of infected and/or susceptible persons declines. Since rats remain infective for their ectoparasites for limited periods of time, it is apparent that in any given locality some minimum number of rats is required to permit continued transmission of the infection. Thus, when that critical level is passed, it is probable that the disease will rapidly disappear.

Indiana State Medical Assn. Journal, Indianapolis

46:273-368 (April) 1953

Hormone-Producing Tumors of Ovary. D. A. Bickel and J. R. Bennett. —p. 293.

Present Status of Radioactive Cobalt Therapy. J. A. Campbell and W. J. Little.—p. 300.

Should Patients be Told When Diagnosis is Cancer? O. R. Bowen. —p. 303.

46:369-468 (May) 1953

Clinical Experiences with Use of Radioactive Iodine in Thyroid Disease. G. W. Irwin.—p. 385.

Problems and Dangers of Blood Transfusions. B. K. Wiseman.—p. 390.

Roles of Family Physician and Local Health Officer in Public Health Program. H. Emerson.—p. 396.

Hospital Relationships of General Practitioner. M. V. Kahler.—p. 401.

Journal of Experimental Medicine, New York

97:591-766 (May) 1953. Partial Index

Synthesis of Type III Pneumococcal Polysaccharide by Suspensions of Resting Cells. A. W. Bernheimer.—p. 591.

Antiviral Substance from Penicillium Funiculosum. R. E. Shope.—p. 601.

Occurrence of Changes Resembling the Inflammatory in Skin Injured and Incubated After Excision. J. V. Cooke, D. Goldring and L. I. Kahn.—p. 651.

Quantitative Studies of Prostatic Secretion: III. Simultaneous Measurement of Size and Secretion of Canine Prostate and Interaction of Androgenic and Estrogenic Substances Thereon. C. Huggins and J. L. Sommer.—p. 663.

Stages of Calcification of Rat Kidney After Administration of Uranium Nitrate. L. K. Dahl.—p. 681.

Studies on Propagation in Vitro of Poliomyelitis Viruses: IV. Viral Multiplication in Stable Strain of Human Malignant Epithelial Cells (Strain HeLa) Derived from Epidermoid Carcinoma of Cervix. W. F. Scherer, J. T. Syverton and G. O. Gey.—p. 695.

Aspermatogenesis in Guinea Pig Induced by Testicular Tissue and Adjuvants. J. Freund, M. M. Lipton and G. E. Thompson.—p. 711.

Observations on Submicroscopic Basophilic Component of Cytoplasm. K. R. Porter.—p. 727.

Studies on Generalized Schwartzman Reaction: III. Lesions of Myocardium and Coronary Arteries Accompanying Reaction in Rabbits Prepared by Infection with Group A Streptococci. L. Thomas, F. W. Denny Jr. and J. Floyd.—p. 751.

Journal of International College of Surgeons, Chicago

19:401-532 (April) 1953

Primary Tumors of Retroperitoneum: Clinicopathologic Analysis of 162 Cases, Review of Literature and Tables of Classification. M. M. Melicow.—p. 401.

Schwannoma of Pharynx: Report of Case and Review of Literature. P. Guggenheim.—p. 450.

Treatment of Angioneurotic Edema with Etamon-Benadryl Combinations. J. M. Hammer.—p. 475.

Transection and Repair of Vena Cava Above Renal Veins During Removal of Teratoma. S. W. Hartwell.—p. 478.

Saddle Block Anesthesia in Obstetrics. E. A. Conti and D. E. Natali. —p. 482.

Transverse Colostomy for Ulcerative Colitis. F. B. Campbell and R. B. Samson.—p. 489.

Neonatal Bleeding and Cerebral Birth Palsy. S. Rosner.—p. 494.

Clinical Management of Pruritus Ani. L. S. Mann.—p. 505.

Fat Embolism: Its Relation to Intramedullary Nailing. C. S. Scuderi. —p. 508.

Traumatic Laceration of Stensen's Duct Producing Intermittent Obstruction. J. Hersh.—p. 513.

Journal-Lancet, Minneapolis

73:119-152 (April) 1953. Partial Index

Pyricidin (Isoniazid) in Treatment of Pulmonary Tuberculosis. S. S. Cohen.—p. 120.
Results of Miniature Chest X-Ray Program. H. M. Berg, R. O. Saxvik and K. Mosser.—p. 122.
Out-Patient Service for Tuberculous Indians in Minnesota. E. A. Leggett. —p. 127.
Value of Tuberculin Skin Testing as Case-Finding Procedure. A. A. Pleyte, D. Kerwin and D. Sternitzky.—p. 130.
Plea for Greater Use of Tuberculin Test in Eradication of Tuberculosis. S. A. Slater.—p. 133.
Report of Committee on Tuberculosis, American College Health Association May 3, 1952. W. T. Palchanis.—p. 136.

Journal of Neurophysiology, Springfield, Ill.

16:203-342 (May) 1953. Partial Index

Similarity in Action Between Curare and Strychnine on Cortical Neurons. Hsiang-Tung Chang.—p. 221.
Behavioral Changes Following Thalamic Injury in Cat. L. Schreiner, D. McK. Rioch, C. Pechtel and J. H. Masserman.—p. 234.
Ontogenetic Study of Motor Deficits Following Dorsal Brachial Rhizotomy. A. M. Lassek and E. K. Moyer.—p. 247.
Independence of Diffuse Thalamo-Cortical Projection System Shown by Specific Nuclear Destructions. J. Hanbery and H. Jasper.—p. 252.
Experimental Study of Transition from Normal to Convulsoid Cortical Activity. R. B. King, J. L. Schricker Jr. and J. L. O'Leary.—p. 286.
Autonomic Responses Mediated Via the Corticospinal Tract. W. M. Landau.—p. 299.
Neuronographic Analysis of Medial and Basal Cerebral Cortex. P. D. MacLean and K. H. Pribram.—p. 312.

Journal of Pediatrics, St. Louis

42:525-644 (May) 1953

Vaccinia. Passive Immunity in Newborn Infants: I. Placental Transmission of Antibodies. II. Response to Vaccinations. C. H. Kempe and A. S. Benenson.—p. 525.
*Effectiveness of Penicillin Administered Orally at Intervals of 12 Hours. N. N. Huang and R. H. High.—p. 532.
Chronic Myelogenous Leukemia in Children. J. V. Cooke.—p. 537.
Mist-O_2-Gen Therapy and Postural Drainage for Respiratory Difficulties of Newborn Infant: Preliminary Report. R. Denton and C. D. Ross. —p. 551.
Intestinal Resection in Infants. J. G. Shellito and W. C. Bartlett.—p. 558.
Septic Arthritis and Osteomyelitis in Infancy. S. Heymann, I. Kessel, H. Jackson and others.—p. 561.
Method for Measurement of Cerebral Blood Flow in Infants and Children. H. W. Baird and J. M. Garfunkel.—p. 570.
Treatment of Pinworm Infection (Enterobiasis) with Papain. T. S. Bumbalo, F. J. Gustina and R. E. Oleksiak.—p. 576.
*Use of Electrophrenic Respirator in Management of Respiratory Difficulty in Postmeasles Encephalitis. L. Weinstein and C. G. Colburn.—p. 580.
Infantile Cortical Hyperostosis (Caffey-Smyth Syndrome): Report of Case in Negro Infant. M. E. Jenkins and R. B. Scott.—p. 586.
New Infusion Valve. R. D. Hawkins and F. J. Vlazny.—p. 589.
Myocarditis of Unknown Etiology (Fiedler's?) Treated with ACTH: Report of Case in 7-Year-Old Boy with Improvement. R. F. Garrison and R. C. Swisher.—p. 591.
Subcutaneous Fat Necrosis of Newborn Infant: Report of Case in an Infant Born by Cesarean Section, and with No Anoxia. R. E. Ivy and F. H. Howard.—p. 600.
An Intrathoracic Cyst of Enterogenic Origin in Young Infant. F. Kuipers and J. Wieberdink.—p. 603.
Four Recurrent Attacks of Pneumococcus Meningitis with Recovery. C. W. Tribiano.—p. 609.
Childhood Cancer (Tumors, Leukemia, and Hodgkin's Disease): Review. J. H. Bufkin and W. C. Davison.—p. 612.

Penicillin at Twelve Hour Intervals.—The effects of different regimens of penicillin therapy were studied in 292 children with 308 various common infections considered sufficiently severe to require antibacterial therapy. Eighty-seven were given orally 200,000 units of potassium penicillin G in a liquid vehicle as an initial dose, followed by 100,000 units of the same preparation at intervals of four hours; 103 were given orally 300,000 units of the same preparation at intervals of 12 hours; and the remaining 102 children were given orally 300,000 units of procaine penicillin at intervals of 12 hours. Clinical and laboratory studies showed that patients who received 300,000 units of penicillin every 12 hours responded as satisfactorily as those who received 200,000 units initially followed by 100,000 units every four hours. The effectiveness of procaine penicillin was comparable to that of potassium penicillin G when each was administered in equivalent amounts at intervals of 12 hours.

Respiratory Difficulty in Postmeasles Encephalitis.—The occurrence of a pronounced degree of respiratory irregularity during the acute phase of postmeasles encephalitis is reported in three boys and one girl. Institution of electrophrenic respiration had an immediate effect and permitted the maintenance of adequate gas exchange until normal regulation of breathing could be established. One of the most striking features of the respiratory difficulty in postmeasles encephalitis was its relatively short duration when properly treated. If the patient can be tided over for a few hours, normal breathing is resumed. There is no recurrence of respiratory irregularity once normal breathing has been established. The electrophrenic respirator is a valuable adjunct to the limited therapeutic armamentarium available for the management of the postinfectious encephalitides. Its proper use is unquestionably life saving. Since convulsions appear to be an almost constant antecedent or concomitant finding at the time of respiratory irregularity, treatment to control and stop them must be carried out simultaneously with institution of adequate ventilation. Phenobarbital sodium parenterally in a dose adjusted to the body weight terminated the acute seizure in a short time in most cases. It has been the practice to administer diphenylhydantoin (Dilantin) sodium at the same time and to continue its use for five or six days after convulsions have stopped. Oxygen has always been given. In instances where phenobarbital sodium is ineffective and the patient is in status epilepticus, anesthetization by the inhalation of ether is frequently effective when all other measures have failed.

Journal of Thoracic Surgery, St. Louis

25:435-544 (May) 1953

Physiologic Studies Following Thoracic Surgery: IV. Mechanism of Development of Acidosis During Anesthesia. W. W. Stead, F. E. Martin and N. K. Jensen.—p. 435.
Personal Experiences with 10 Consecutive Cases of Heart Wound Treated Successfully by Pericardiotomy and Cardiorrhaphy: With Reference to 74 Earlier Cases, 54 Surgically Treated at Harlem Hospital. E. A. Naclerio, A. deL. Maynard and J. W. V. Cordice Jr.—p. 448.
Thoracoplasty and Resection for Pulmonary Tuberculosis. F. A. Hughes, C. C. Lowry and J. W. Polk.—p. 454.
*Pulmonary Resection in Treatment of Blastomycosis. H. A. Buechner, A. E. Anderson, L. H. Strug and others.—p. 468.
Recovery from Experimental Atelectasis. P. J. S. Damsté, H. Heemstra and M. N. J. Dirken.—p. 480.
Malignant Disease in Association with Hiatus Hernia and Thoracic Stomach. D. Robb.—p. 493.
Double Lumen Catheter for Bronchospirometry. K. Marsh.—p. 495.
Maximum Breathing Capacity and Saline Infusion Test. W. G. Gobbel Jr., T. S. Reeve, A. Stranahan and J. Hughes.—p. 498.
Broncho-Subdiaphragmatic Fistula: With Report of Two Cases. H. A. Albertson.—p. 505.
Traumatic Cardiac Septal Defect: Report of Case in Which Diagnosis is Established by Cardiac Catheterization. P. H. Guilfoil and J. T. Doyle. —p. 510.
Thoracoplasty with Temporary Extraperiosteal Lucite Ball Plombage. A. H. Povah.—p. 516.
Unusual Aneurysm of Pulmonary Artery: Report of Case in Which Treatment was Surgical. D. A. MacKenzie and O. T. Clagett.—p. 524.
Reaction of Pulmonary Tissue to Lipiodol. W. L. Felton II.—p. 530.

Pulmonary Resection for Blastomycosis.—Lobectomy was performed on two men, aged 56 and 49 years, with pulmonary blastomycosis; one had a discrete nodular lesion and the other acute progressive disease. Although the correct diagnosis was not established preoperatively in the older patient, early intervention for a lesion suspected of being malignant resulted in eradication of the blastomycotic process while it was still localized. A three month period of complete bed rest was enforced, during which time the patient remained afebrile and asymptomatic and gained 19 lb. (8.6 kg.) in weight. After an additional three months of gradually increased activity, the patient resumed his former occupation as an elevator operator and nine months after the operation he was in excellent health. There was no roentgenographic evidence of recurrent disease. This highly satisfactory result was thus obtained with lobectomy and bed rest alone without postoperative administration of a fungicidal agent. In the younger patient a preoperative diagnosis of bronchiogenic malignancy with secondary infection was favored over that of a primary inflammatory process. There was excellent postoperative reexpansion of the remaining lobes of the right lung. The patient was essentially asymptomatic and was discharged from the hospital on the

24th postoperative day with instructions for modified bed rest at home. Within three weeks fever and cough recurred, and sputum culture was positive for Blastomyces dermatitidis. Preoperative and postoperative use of some of the more effective fungicidal agents now available might have prevented the postsurgical flare-up of the disease process. These two cases are the first to be reported in the literature in which lobectomy was employed in the treatment of pulmonary blastomycosis. Pulmonary blastomycosis may closely simulate bronchiogenic carcinoma in its roentgenographic appearance and must be considered in the differential diagnosis of the latter condition. The excellent results obtained in the older patient suggests that pulmonary resection should be strongly considered in the therapy of some cases of blastomycosis. The prompt recurrence of the disease in the other patient seems to indicate that resection alone does not represent suitable therapy in dealing with intense, poorly localized, progressive blastomycotic lesions. The management of blastomycosis should simulate that of pulmonary tuberculosis. The combined use of drugs and resection might offer more favorable results in pulmonary blastomycosis, just as streptomycin and *p*-aminosalicylic acid combined with surgical intervention have improved the prognosis of tuberculosis.

Journal of Urology, Baltimore

69:467-604 (April) 1953. Partial Index

Cholesteatoma of Kidney Simulating Squamous Cell Carcinoma. H. N Naumann and S. A. Sabatini.—p. 467.
Fibrosarcoma of Adult Kidney: Case Report. T. E. Ruff.—p. 474.
Renal Adenoma: Pyelograms Showing Growth Over a Five Year Period. H. S. Shelley.—p. 480.
Renocolic Fistula: Report of Case. J. D. Briggs and R. M. Neale. —p. 484.
Experimental Substitution of Common Bile Duct with an Autologous Ureteral Graft. I. T. Rieger, F. J. Wahl and G. M. Hass.—p. 487.
Foreign Bodies in Ureter: Complication from Use of Electrodes for Ureteral Meatotomy. J. C. Valenta and C. V. Chenoweth.—p. 492.
Use of Cortisone in Interstitial Cystitis: Preliminary Report. J. E. Dees. —p. 496.
Ureterostomy-in-Situ. S. N. Vose and G. M. Dixey.—p. 503.
Bladder Carcinoma: 5 Year Survival. F. E. Cook Jr. and J. C. Kimbrough.—p. 507.
*Nonoperative Treatment of Stress Incontinence in Women. L. R. Wharton. —p. 511.
Non-Surgical Management of Congenital Neurogenic Vesical Dysfunction. C. L. Prince and P. L. Scardino.—p. 520.
Useful Instrument in Repair of Vesicovaginal Fistula. B. Bloom.—p. 528.
*Granulomatous Prostatitis: Condition Which Clinically May be Confused with Carcinoma of Prostate. G. J. Thompson and D. D. Albers. —p. 530.
Notes on Prostatic Surgery, and Results Which Should be Expected of It. D. M. Davis.—p. 539.
Spindle Cell Sarcoma of the Prostate Gland: Case Report. G. H. Derian. —p. 544.
An Unusual Case of Penile Carcinoma. P. H. Reitman.—p. 547.
Cancer of Penis: Report of 88 Cases. J. H. Furlong Jr. and C. A. W. Uhle.—p. 550.
Funnel and Bib Plastic for Hypospadias: Follow-Up Experience. M. Muschat.—p. 556.

Treatment of Stress Incontinence in Women.—Wharton describes his experiences in the treatment of 26 women with stress incontinence, all of whom were studied medically, gynecologically, and, when necessary, urologically, to determine the causative factors and the most promising methods of treatment. Stress incontinence occurs in a variety of circumstances: in the young and old, in the nulliparous and parous, independently of any other urinary disorder, in the fat and thin, in the presence of senility and neurological disorders, postoperatively, and without respect to any other gynecological disorder. It seems that the sphincter mechanism in women is not particularly rugged, and that its efficiency may be easily impaired by factors that increase the pressure or stress on the full bladder or impair the neuromuscular mechanism of urinary control. Cystoscopy with elimination of local urological disorders such as trigonitis, urethritis, hydroureter, and hydronephrosis was employed by Wharton in six patients. Two were cured and three improved, but the cystoscopic treatment failed in the sixth patient. Stress incontinence of one year's duration disappeared spontaneously without any treatment in one patient; two others who received no treatment were not improved. Weight reduction effected improvement in two of the patients. Exercises were used exclusively or as the chief therapy in 19 cases, and for 15 of these, enough time has passed to warrant drawing conclusions. Six patients have been cured, five have been improved, and four have not been noticeably benefited. The exercises consist solely in the voluntary tightening of the vesical and rectal sphincters, as recommended by Kegel. The patient is told to contract the vesical sphincter just as if she were trying to prevent the escape of urine; at the same time she is to contract the rectal sphincter as if she were trying to prevent the escape of gas or fecal material. In Wharton's experience, one can explain these exercises by verbal directions, without demonstrating these muscles. Furthermore, he feels that the Perineometer (a device for measuring the force of contraction of perineal muscles), which was formerly used in the exercise treatment, is a useless encumbrance. Improvement in urinary control is usually evident within a month after the exercises are begun. If stress incontinence is accompanied by gross gynecological disorders, such a prolapse of the uterus or vagina or large pelvic tumors, these disorders should be corrected by surgical means. At the same time, if feasible, a Kelly plication of the vesical sphincter should be done. When, however, there is no significant gynecological or urologic disorder, the stress incontinence should be treated by exercises designed to strengthen the sphincter mechanism and by accessory medical or urologic means as indicated.

Confusion with Carcinoma of Prostate of Granulomatous Prostatitis.—Thompson and Albers found that in a number of cases in which a preoperative diagnosis of carcinoma of the prostate gland was made, microscopic examination of tissue resulted in the diagnosis of granulomatous prostatitis. With the aim of clarifying the confusion existing between prostatic carcinoma and granulomatous prostatitis and to uncover symptoms and laboratory findings that might indicate the latter diagnosis preoperatively, they obtained at random the records of 36 patients who had received the pathological diagnosis of granulomatous prostatitis, and who had undergone transurethral resections at the Mayo Clinic during the period from January, 1943, to September, 1949, inclusive. No attempt was made to study every case of granulomatous prostatitis in the records of the clinic. In these 36 cases, the preoperative diagnosis of carcinoma of the prostate or probable carcinoma of the prostate had been made 20 times and benign hypertrophy 16 times. The authors describe six cases that illustrate various phases of granulomatous prostatitis. They include two patients who had eosinophilic granulomatous prostatitis. This study reveals nothing in the history or physical findings that can be used as positive evidence to differentiate malignant disease and granulomatous prostatitis. It seems likely that this condition occurs oftener than is recognized and that some patients with this benign condition are in danger of being treated for carcinoma of the prostate. The use of hormonal therapy, such as the administration of diethylstilbestrol, and especially the use of surgical castration, must not be considered in the absence of evidence of carcinoma in biopsy specimens or in the absence of roentgenologic evidence of carcinoma of the prostate. Granulomatous prostatitis can produce a consistency of the prostate identical to that produced by carcinoma and, unless tissue is examined microscopically, the proper differential diagnosis cannot be established.

Laryngoscope, St. Louis

63:281-354 (April) 1953

Glomus Jugulare Tumor of Middle Ear: Clinical Aspects. L. A. Brown. —p. 281.
Relation of Septum Reconstruction to External Deformities of Nose. R. H. Riggs.—p. 293.
*Tracheal Obstruction from Benign Lymphoid Hyperplasia in Cricoidal and Tracheal Mucosa: Report of Case. G. W. Olson.—p. 304.
Climatologic Factors in Ear, Nose and Throat Disease. J. M. Kinkade. —p. 311.
Changing Concepts Regarding Therapeutic Management of Certain Endoscopic Problems. H. E. Bozer.—p. 321.
Terramycin and Surgery in Case of Osteomyelitis of Frontal Sinus: Case Report. M. Hyman.—p. 340.

Tracheal Obstruction from Benign Lymphoid Hyperplasia.—The chief complaints in a girl, aged 2½ years, were gasping for breath during exercise, a change in voice, and noisy breathing while sleeping. The mother stated that the baby had developed noisy breathing during the second week of life and that this gradually became worse. When the baby was 3 months old, the parents consulted a pediatrician. Chest roentgenograms in July, 1949, were said to have revealed enlargement of the thymus gland. Three x-ray treatments were given at that time, but no significant improvement in symptoms was noted. When the child was first seen by Olson in February, 1952, the voice had a "tinny" sound. Respiratory distress was noted when the child was allowed to run around in the office. A scout film of the upper airway revealed narrowing of the upper trachea as it merged with the larynx. The lumen of the trachea at this point was reduced to one-third of normal size by a mass arising from the posterior wall of the trachea. The child was hospitalized, and direct laryngoscopy was performed with the child under light general anesthesia. A rounded, smooth, nonulcerated mass of firm consistency and with a broad base was seen in the posterior wall at the cricoid level. A 3.5 mm. bronchoscope could not pass the obstruction. Tracheotomy was performed on Feb. 29, 1952. The tube was inserted at the level of the seventh and eighth tracheal cartilages. A 5 mm. bronchoscope was then introduced and specimens of tissue were removed for microscopic examination. The child was returned to the ward in good condition, but late that evening her respirations became labored. A bilateral pneumothorax had developed, which necessitated thoracotomies and the insertion of a Foley catheter into each pleural space. The dyspnea promptly disappeared. The pneumothorax cleared rapidly, and the Foley catheters were removed after three days. In reviewing all of the pathological material and the clinical history, it was felt that the patient had a benign deposit of lymphoid tissue beneath the tracheal mucosa. The further course was uneventful and the child was well at the time of writing, but only time will tell whether or not subsequent infections will result in recurrence of the mass.

Louisiana State Medical Society Journal, New Orleans

105:91-134 (March) 1953

Cancer of Thyroid. H. Mahorner.—p. 91.
Treatment of Carcinoma of Esophagus. L. H. Strug.—p. 96.
Radioactive Gold in Treatment of Advanced Carcinoma of Prostate and Bladder: Preliminary Results in 24 Cases. E. Burns, J. U. Hidalgo and R. Nieset.—p. 99.
Coronary Embolism: Case Report. E. B. Flake, M. D. Hargrove and W. R. Matthews.—p. 103.
Clinical Study of Hypotensive Effect of Two Veratrum Viride Products. H. J. Dupuy, J. Signorelli and A. M. Attyah.—p. 106.
Endometrial Hyperplasia. A. G. McHenry.—p. 107.
Acute Intussusception in Adolescents and Adults. W. F. Becker.—p. 110.
Chondrodystrophia Calcificans Congenita: (Dysplasia Epiphysialis Punctata). J. W. Birsner and R. Cohen.—p. 114.
Evaluation of Disability in Applicants for Welfare Assistance. I. Stevenson and C. A. Potter Jr.—p. 116.

Metabolism, New York

2:201-296 (May) 1953

*Lipodystrophy Following Insulin Injections. R. G. Paley.—p. 201.
Comparative Effects of Insulin Administered Intravenously and Subcutaneously. B. Beidleman, L. A. Principato and G. G. Duncan.—p. 211.
Potassium Deficiency in Man. W. H. Blahd and S. H. Bassett.—p. 218.
Evidence for Presence of Amphoteric Electrolyte in Urine of Patients with "Renal Tubular Acidosis." J. Dawson, E. Dempsey, F. Bartter and others.—p. 225.
Total Accountable Radioiodine: Combined Thyroid Uptake and Urinary Excretion of I^{131} in Study of Thyroid Function. W. E. Goodwin.—p. 238.
Hepatic Necrosis Due to Bromobenzene as Example of Conditioned Amino Acid Deficiency. D. Koch-Weser, J. de la Huerga, C. Yesinick and H. Popper.—p. 248.
Effect of Lyophilized Thymic Extracts on Serum Calcium and Phosphorus. H. Schwarz, M. Price and C. A. Odell.—p. 261.
Influence of Testosterone Propionate on Protein Metabolism of Hypophysectomized Rats. J. J. Rupp and K. E. Paschkis.—p. 268.
A 24-Hour Periodicity in Relative Specific Activity of Phosphorus Fractions from Liver Microsomes of Mice. C. P. Barnum and F. Halberg.—p. 271.

Lipodystrophy Following Insulin Injections.—Loss of subcutaneous fat occurs in diabetic patients receiving insulin; local hypertrophy of the subcutaneous fat may also occur. Paley feels that the term lipodystrophy should refer to all abnormal reactions of the subcutaneous fat to insulin injections, and that loss of this tissue should be termed lipoatrophy. The following causes have been suggested for the disappearance of the subcutaneous fat: trauma due to the repeated injections, low-grade inflammation, tricresol used as a preservative in insulin, the assumed lipase content of insulin, the strong initial concentration of insulin, and local sensitivity to insulin. Few of these possibilities have been supported by fact. Data were collected during the years 1947 to 1950, when diabetic patients with dermal reactions to insulin were studied at a diabetic clinic in Leeds, England. Lipoatrophy developed in 102 of 186 diabetic patients (54.8%) in whom insulin therapy was started at the Leeds Clinic between 1947 and 1949, by far the highest recorded incidence of this complication. It occurred in 25.5% of the males and in 64.7% of females. The lipoatrophy was very slight in 45% of those affected, moderate in 39%, and severe in 16%. In the 77 patients in whom the time of onset of lipoatrophy was known, it was 269 ± 36.9 days from the first injection. Patients using protamine zinc insulin had a significantly higher incidence than those receiving soluble insulin. Patients originally showing dermal reactions to insulin were most likely to suffer subsequent atrophy. Spontaneous improvement occurred in almost 30% of the patients with this complication irrespective of the type of treatment. The exact cause of the abnormality is still unknown, and therefore no rational therapy is available.

Missouri Medicine, St. Louis

50:321-392 (May) 1953

Giant Calculus of Bladder: Report of Case and Review of Literature. E. H. Burford, C. E. Burford and J. E. Glenn.—p. 339.
*Mortality of Acute Appendicitis Treated Surgically in Small General Hospital: 15 Year Review. J. H. Hill and R. W. Butcher.—p. 341.
Treatment of Chronic Constipation in Childhood. R. J. Burke.—p. 343.
Estradiol 17-Cyclopentyl-Propionate. S. D. Soule and M. Yanow.—p. 345.

Mortality of Surgically Treated Acute Appendicitis.—The mortality of acute appendicitis was determined in 2,212 patients treated surgically in a small general hospital between 1936 and 1950. Of the 2,212 patients, 738 were treated between 1936 and 1940, representing the presulfonamide era; of the 738 patients, 28 died, a mortality rate of 3.8%. Nine of 891 patients died who were treated between 1941 and 1945, when sulfonamides were used, a mortality rate of 1%. Of the remaining 583 patients treated between 1946 and 1950, when both sulfonamides and the antibiotics penicillin and streptomycin were used, 3 died, a mortality rate of 0.5%. The majority of the deaths were due to peritonitis, and the present favorable results were attributed to the use of antibiotics and sulfonamides in treatment. The incidence of gangrene and perforation remained essentially unchanged during the 15 year period.

Nebraska State Medical Journal, Lincoln

38:169-200 (May) 1953

PANEL DISCUSSION ON HEADACHE

Headaches from Standpoint of Otolaryngologist. J. J. O'Neil.—p. 171.
Headache from Standpoint of Ophthalmologist. W. H. Morrison.—p. 173.
Headache from Standpoint of Internist. A. M. Greene.—p. 174.
Headache from Standpoint of Gynecologist. W. R. Kovar.—p. 176.
Headache from Standpoint of Neurologist and Psychiatrist. R. S. Wigton.—p. 179.
Dermatomyositis: Report of Case with Autopsy and Literature Review. L. L. Hoaglin Jr., G. H. Demay, W. B. Moody and J. R. Schenken.—p. 184.

Neurology, Minneapolis

3:321-398 (May) 1953

America's First National Neurologic Institute. P. Bailey.—p. 321.
Sensory and Motor Loss After Non-Neural Injuries; 43 Cases of Ascending Neuritis. M. Kelly.—p. 327.
Ammonium Chloride as an Adjuvant to Anticonvulsant Medication in Epilepsy. F. Kant, W. E. Gilson, H. A. Peters and H. Bouman.—p. 336.
Myelography by Means of I^{131}; the Myeloscintigram. F. K. Bauer and E. T. Yuhl.—p. 341.
Muscle Action Potentials in Myopathies with Special Regard to Progressive Muscular Dystrophy. P. Pinelli and F. Buchthal.—p. 347.
Minor and Major Tremor; Results in 544 Treated Cases. L. J. Doshay, K. Constable and A. Zier.—p. 360.
Total Protein Content of Cerebrospinal Fluid in Multiple Myeloma. M. J. Madonick and S. Solomon.—p. 369.

New England Journal of Medicine, Boston

248:709-746 (April 23) 1953

Use of Telepaque in Cholecystography: Comparative Study. C. F. Miller and J. W. Carrier.—p. 709.
An Improved Test for Bilirubin in Urine. G. Klatskin and L. Bungards. —p. 712.
Chemotherapy of Tuberculosis. W. S. Schwartz.—p. 717.
*Correction of Rectal Procidentia: Thiersch Operation as Simple Palliative Procedure. J. Berkowitz.—p. 720.
Tuberculosis: Incidence Among American Medical Students, Prevention and Control and Use of BCG. W. A. Abruzzi Jr. and R. J. Hummel. —p. 722.
Kartagener's Syndrome (Situs Inversus, Bronchiectasis and Chronic Sinusitis): Report of Case. M. Katz, E. E. Benzier, L. Nangeroni and B. Sussman.—p. 730.
Practical Use of Color in Clinical Diagnosis. E. H. McGehee.—p. 731.

248:747-796 (April 30) 1953

Coarctation of Thoracic Aorta: Signs Demonstrable by Conventional Roentgenography. L. L. Robbins and S. M. Wyman.—p. 747.
Spontaneous Pneumothorax: Medical and Surgical Movement: Analysis of 75 Patients. H. M. DuBose, H. J. Price and P. H. Guilfoil.—p. 752.
Nevus Unius Lateralis: Report of Case. N. Lenson.—p. 757.
Treatment of Hyperthyroidism: Medical or Surgical. H. M. Thomas Jr. —p. 760.
Periarteritis Nodosa and Other Forms of Necrotizing Angiitis. P. M. Zeek.—p. 764.
Bradycardia and Syncope as Early Manifestations of Bronchogenic Carcinoma. A. M. Paull, D. V. Pecora, P. Cooper and H. A. Lawson. —p. 773.

Correction of Rectal Procidentia.—The occurrence of rectal procidentia in the sense of abnormal descent of all the coats of the rectum with protrusion through the anus as a large mass in the intergluteal region is reported in three women between the ages of 68 and 75 years. The Thiersch operation designed to diminish the size of the anal canal by means of a nonyielding wire cuff, thus obtaining a mechanical barrier to the prolapsing mass of tissue, was performed with local anesthesia in all three patients. There was little postoperative pain. Hot boric acid compresses or hot sitz baths offered satisfactory relief from discomfort. A daily enema is required indefinitely to prevent fecal impaction. There were no complications or recurrences in any of the three patients at 10 months, 9 months, and 4 months after the operation. Despite the fact that the wire became loosened in one patient, there was no recurrence. The Thiersch operation is a simple palliative procedure recommended for the correction of rectal procidentia in the elderly, debilitated patient. Performed with local anesthesia, the operation requires about 15 minutes. The author's patients have been restored to a normal existence.

New Jersey Medical Society Journal, Trenton

50:127-166 (April) 1953

Medical Society of New Jersey—Its First Quarter Century. F. B. Rogers. —p. 132.
New Jersey Service to the Physically Handicapped. H. A. Brodkin. —p. 135.
The Headache Problem. S. F. Smith.—p. 138.
Towards Better School Health Examinations. N. Castaldo.—p. 148.
*Clinical Investigation of the Oral Mercurial Neohydrin Over One Year Period. W. Leff and H. E. Nussbaum.—p. 149.
*Generalized Dermatosis Caused by Dental Infection: Case Report of Bacteria Sensitivity and Its Control by Desensitization. S. L. Hanfling and S. N. Knopf.—p. 153.

New Mercurial Diuretic for Oral Administration.—A new mercurial diuretic for oral use, chlormerodrin (Neohydrin) was given to 33 patients with congestive heart failure, all of whom had previously received meralluride (Mercuhydrin) injections at least once a week and were maintained with digitalis therapy and a low salt diet. Four patients stopped medication because of unpleasant side-effects. One patient stopped taking the drug because he did not show improvement, but after one month started again and became fully compensated. Twenty-eight patients tolerated the drug well for from 2 to 12 months. All signs and symptoms of congestive heart failure disappeared. No meralluride injections were necessary in this group. The most effective dose was one tablet of chlormerodrin (10 mg.) three or four times a day. With chlormerodrin therapy, the maintenance of cardiac compensation and improvement in tissue nutrition is also accompanied by a marked restoration of confidence and well-being.

Generalized Dermatosis Caused by Dental Infection.—A man, aged 28, reported that while he was in the Army he had two attacks of vesicles and bullae of his hands and feet that later became generalized. They oozed and were finely crusted and erythematous, and there was swelling of the face, necessitating many weeks of hospitalization. The present attack began as an itchy erythema of the back of his hands and of his neck. Immediately after this he noticed blisters of the hands, and three days later his face became swollen and was covered with a fine crust. During this period the eruption became generalized. Later he had several similar attacks following tooth extractions or other dental care. He was tested with the penicillin and the anesthetic employed by the dentist, but reactions to both were negative. It was concluded that the eruption was due to a skin sensitivity to the organisms involved, and it was decided to desensitize the patient with an autogenous vaccine. A culture from material from a peridontal pocket grew a pure strain of microaerophilic alpha hemolytic streptococci. The autogenous vaccine was prepared from organisms that had been treated with tricresol. A course of graded subcutaneous densensitization injections was given. This case, the authors suggest, was one of "generalized toxic eruption," possibly with an erythema multiforme bullosa of the extremities. Several points argue against this diagnosis. The eruption followed immediately after dental work on six separate occasions, sometimes within three hours. Following desensitization nine teeth were extracted with only one reaction, which followed an unusual amount of trauma. This seems fairly conclusive proof that this dermatitis was caused by the temporary bacteremia resulting from dental work in the presence of skin hypersensitivity to the cultured organism.

New York State Journal of Medicine, New York

53:921-1032 (April 15) 1953

*Varicose Veins, a Chronic Disease: Evaluation of 20 Years of Experience in Treatment. H. I. Biegeleisen.—p. 963.
Vascular Changes in Diabetic and Arteriolosclerotic Retinopathy Obtained by Modified Solution of Benzyl Cinnamate. J. Jacobson.—p. 970.
Treatment of Degenerative Joint Disease (Osteoarthritis) by Intra-Articular Instillation of Hydrocortisone (Compound F). S. Davison. —p. 975.
Present-Day Physiology and Management of Hyperthyroidism. B. J. Ficarra.—p. 978.
Enzymatic Débridement in Treatment of Arteriosclerosis Obliterans with Gangrene. H. L. Myers.—p. 981.
Carcinoma of Breast During Pregnancy. M. Weinstein and M. Roberts. —p. 993.
Interlocked Twins. D. D. Friedman.—p. 995.
*Spasm of Urethra Preventing Withdrawal of an Urethral Catheter. A. A. Johnson, C. Ney and H. Provet.—p. 997.

Varicose Veins, A Chronic Disease.—Varicose veins form part of a hereditary syndrome of generalized fascial weakness. The tendency toward the regrowth of varicose veins is inborn and cannot be eliminated by any known method of treatment. Not a single permanent cure has been secured by either surgical treatment or injection, or by any combination of these methods, in the experience of 20 years. Many reports of favorable results are based on an insufficient follow-up; recurrences have sometimes been observed as long as eight years or more after apparently successful treatment. Lymphedema is a frequent complication of vein surgery and should be studied more carefully; if lymphedema is found to occur in a significant proportion of cases, it will be necessary to conclude that surgical treatment of varicosities is inadvisable. The venous circulation is abundantly supplied with secondary channels and this safety factor, which protects the body in the event of trauma, works against any successful treatment of varicose veins; the reaction produced by therapy aimed at their elimination is the same as that produced by injury. Communicating and anastomotic changes immediately begin, and fresh varicosities may appear in the newly developed secondary circulation. Conservative treatment by sclerotherapy remains the treatment of choice, but since the condition is chronic, it can only be held in check by periodic examinations and supplementary injections as needed. No patient should ever be discharged as cured.

Urethral Spasm Preventing Withdrawal of Catheter.—Three patients, one with spastic paraplegia and two with benign prostatic hypertrophy, were subjected to urethral catheterization for routine residual urine determination. Severe urethral spasm was initiated by the procedure and made withdrawal of the catheter impossible. Experience in the first case, in which the catheter was actually broken off at the external sphincter so that the remaining portion had to be removed with a foreign-body forceps, showed that some method of securing complete relaxation of the urethra was needed to solve the problem. External heat, antispasmodic drugs, general or block anesthesia, and various other methods might be used, but since the cases reported occurred in the office and rectal diathermy was readily available, it was tried in the other two cases and proved successful.

53:1033-1144 (May 1) 1953

Epidermolysis Bullosa Due to Sulfonamides. D. Bloom.—p. 1077.
Carcinoid Tumor of Rectum: Report of Three Cases. B. W. Warner. —p. 1082.
Hookworm Infection as Diagnostic Problem in New York City. A. J. Weil.—p. 1085.
Fungicidal Action of Thorium X on Hairs Infected with Microsporon Audouini. S. Monash, J. J. Sher, E. F. Traub and I. I. Lubowe. —p. 1087.
Psychopathic Personalities: Failures and Criminals. B. Liber.—p. 1088.
*New Nervous Pathway for Ménière's Disease. S. Rosen.—p. 1095.
A Half Century of Hormones. R. Colp Jr.—p. 1098.
Ectopic Pregnancy. J. T. Kane and F. X. Haines.—p. 1101.
*Fatal Anaphylaxis in Bronchial Asthma Following Administration of Penicillin: Report of Two Cases with Autopsy Findings. T. J. Curphey. —p. 1107.
Failure of Routine Precordial V Leads in Diagnosis of Myocardial Infarction. I. Hirshleifer, S. I. Fishman, G. Schwartz and A. Fankhauser.—p. 1111.
Report on Death of Patient with Convulsive Seizures During Treatment of Rheumatoid Arthritis with Cortisone, ACTH, and Postpartum Plasma. D. T. Bonham.—p. 1114.
Case of Bell's Palsy Followed by Herpes Zoster Oticus. A. J. McSweeny. —p. 1118.

New Nerve Pathway for Ménière's Disease.—Rosen demonstrates that Ménière's disease is not localized exclusively in the internal ear but that other nerve structures and pathways are involved. Patients in whom the isolated chorda tympani nerve was subjected to electrical stimulation under local anesthesia reported hearing such sounds as "hissing, buzzing, roaring, ringing, and bubbling," and some experienced vertigo similar to that of Ménière's disease. Hearing and vestibular functions were preserved in 14 patients with Ménière's disease after sectioning of the chorda tympani alone or together with Jacobson's tympanic plexus. Vertigo ceased in 11 patients and persisted in two. Tinnitus disappeared in one, in seven it was no longer annoying, and in six it was unaffected. In one patient in whom the chorda had been sectioned three years before, the hearing returned to a useful high level and remained so, and tinnitus and a sensation of fullness were almost absent. The author points out that the chorda tympani nerve continues upward from the geniculate ganglion as the nervus intermedius. The chorda tympani and the nervus intermedius are a part of the same sensory system, and may be regarded functionally as one nerve, namely, the chorda intermedius. The intermedius communicates with the vestibular branch of the eighth cranial nerve in the internal auditory canal, then continues centrally to join the tractus solitarius, and ends in th seventh sensory nucleus in close relationship with the vestibular and cochlear nuclei. By this pathway, impulses along the chorda intermedius could affect the vestibular function peripherally and both vestibular and cochlear functions centrally. This pathway explains the results of chorda tympani stimulation (vertigo and tinnitus), and also the cessation of vertigo and relief of tinnitus following section of the chorda tympani in Ménière's disease. The author describes two patients with severe Ménière's disease in whom section of the chorda tympani was followed by cessation of vertigo and almost complete cessation of tinnitus. Rosen feels that the discovery of this new pathway will stimulate further investigation and may in turn reveal other structures involved in Ménière's phenomenon. Sectioning of the chorda tympani eliminated vertigo and relieved tinnitus in Ménière's disease, while preserving hearing and vestibular functions.

Fatal Anaphylaxis Following Administration of Penicillin to Asthmatic Persons.—The author reports two fatal cases due to anaphylaxis following intramuscular injection of penicillin in patients with long-standing bronchial asthma and previous sensitization to penicillin. The first patient complained of tightness in her chest three minutes after she had been given an intragluteal injection of 300,000 units of aqueous procaine penicillin. Despite administration of epinephrine, she died five minutes after the penicillin had been given. She had had bronchial asthma for many years, and had been hospitalized for treatment on nine separate occasions, several times in status asthmaticus, requiring injections of ether in oil. She had received many injections of penicillin solution for attacks of sinusitis and pharyngitis. During the past year she had received aqueous procaine penicillin 300,000 units on three or four occasions without ill effect, but there was a history of allergy to penicillin in oil. The second patient was a 63-year-old man with asthma and bronchiestasis of long standing. He had received aerosol penicillin prior to 1947. In December, 1951, he was given an intramuscular injection of 400,000 units of crystallin penicillin and 0.5 gm. of streptomycin in distilled water. Following this he complained that he was having great difficulty in breathing. He had a convulsion and died 8 to 10 minutes after the injection. In case 1 autopsy showed hyperventilation of all pulmonary lobes, with changes similar to changes in anaphylactic death of guinea pigs and in contrast with those usually seen in dogs, rabbits, and humans. Of greater interest still is the unusual paucity of microscopic alterations. If knowledge of the clinical history and the circumstances surrounding the death had been lacking in case 1, it is questionable whether a diagnosis of anaphylaxis could have been made unless it were based on the gross appearance of the lung. Examination of the organs in case 2 established an allergic tendency, because of the marked eosinophilic infiltration in the lungs, the spleen, and the bone marrow. Another point of interest is the absence of smooth muscle hypertrophy of the bronchial walls in both cases.

Ohio State Medical Journal, Columbus

49:377-472 (May) 1953

Epiploic Appendages as Cause of Abdominal Symptoms: Report of Three Cases and Brief Review of Literature. W. Furste and J. M. Rini. —p. 401.
Intestinal Obstruction Due to Impacted Gallstones. I. H. Einsel.—p. 406.
Photographic Evidence of Improvement After Stellate Ganglion Block Treatment of Acute Cerebrovascular Accident. W. R. Chambers. —p. 409.
Practical Considerations in Culdoscopy. E. Eichner.—p. 410.
Amyloidosis, Secondary to Syphilis. C. S. Kellog.—p. 413.
Keeping Up with Medicine. J. Forman.—p. 414.
Psychiatric Practice. J. M. Kenyon.—p. 415.

Postgraduate Medicine, Minneapolis

13:383-486 (May) 1953

I. Effect of Adrenals in Allergy: II. Effect of Cortisone in Clinical Allergy. L. H. Criep.—p. 383.
Role of Surgery in Peptic Ulcer. A: Horwitz.—p. 391.
Toxemia of Pregnancy: Outline of Treatment. S. T. Garber.—p. 402.
Misconceptions Leading to Delay in Diagnosis of Intracranial Space-Taking Lesions. W. R. Chambers.—p. 405.
Fallacy in Allergy. A. A. White.—p. 410.
Papilloma of Bladder. W. J. Engel.—p. 423.
Surgery in Poliomyelitis in Infancy and Childhood. W. T. Mustard. —p. 428.
New Approach to Increasing Tolerance to Oral Aminophylline. G. Cronheim, T. T. Justice Jr. and J. S. King Jr.—p. 432.
Trilobectomy and Lingulectomy for Bronchiectasis. W. P. Kleitsch. —p. 435.
Clinical Experience with Tryptar in Treatment of Infected Wounds. J. M. Miller, B. H. White and P. H. Long.—p. 438.
Hepatic Cirrhosis and Its Complications. C. W. Legerton Jr.—p. 449.
Pregnancy and Labor in Cardiac Patient. R. A. Reis.—p. 454.
Myocardial Infarction—Evolutionary Process. W. M. Johnson.—p. 459.
Use of Mineral-Enriched Meats as Substitute for Milk in Various Clinical Conditions. M. R. Ziegler.—p. 461.
Significance of Hepatomegaly in Infants and Children. G. B. Logan. —p. 469.

Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

82:365-546 (March) 1953. Partial Index

Effect of Repeated Doses of External and Internal Irradiation on Structure of Spleen. H. Goldie, G. J. Tarleton Jr., B. R. Jeffries and P. F. Hahn.—p. 395.
*In Vitro and In Vivo Activity of Candicidin on Pathogenic Fungi. A. M. Kligman and F. S. Lewis.—p. 399.
Phagocytosis Influenced by Bacterial Culture Medium. E. M. Lerner II and J. Victor.—p. 414.
Hematologic Studies on Dogs Receiving Low Doses of Total Body Irradiation. F. J. Ragaz and H. J. van Baaren.—p. 419.
Effect of Cortisone on Mumps Antibody Formation in Rabbits. J. R. Overman and R. Hanan.—p. 427.
Renal Function During Positive Pressure Respiration. P. K. Knoefel, C. A. Handley and R. A. Huggins.—p. 430.
*Poliomyelitis Virus in Human Blood During "Minor Illness" and Asymptomatic Infections. D. M. Horstmann and R. W. McCollum.—p. 434.
Prothrombin Activity of Blood of Newborn. A. J. Quick and C. V. Hussey.—p. 449.
Growth of Poliomyelitis Viruses in Large Stationary Cultures. C. A. Miller—p. 450.
Electron Microscopic Examination of Inclusion Bodies of Herpes Simplex Virus. C. Morgan, S. A. Ellison, H. M. Rose and D. H. Moore. —p. 454.
Pulmonary Tumors in Strain A Mice Exposed to Mustard Gas. W. E. Heston.—p. 457.
Influence of Pregnancy Upon Hypertension Induced in Rats by Sodium Chloride and Desoxycorticosterone. E. W. Page and M. B. Glendening. —p. 466.
Passive Immunity in Poliomyelitis. VI. Antibody Decline in Rhesus Monkeys Inoculated with Homologous Lansing Antiserum. W. Wood, E. M. Clark, F. T. Shimada and others.—p. 487.
Oral Administration of Co^{60} Vitamin B_{12} in Pernicious Anemia. L. M. Meyer.—p. 490.
Effect of Complete Hepatic Vein Ligation on Portal Pressures and Ascites Formation in Dogs with Portal-Caval Shunts. F. S. Cross, F. L. Raffucci, R. W. Toon and O. H. Wangensteen.—p. 505.
Eosinophile in Human Skin Homografting. B. O. Rogers, J. M. Converse, A. C. Taylor and R. M. Campbell.—p. 523.

Action of Candicidin on Pathogenic Fungi.—The water-soluble fraction of candicidin was tested for antifungal activity in vitro against rapidly growing yeast-like fungi, such as Cryptococcus neoformans and Candida albicans, and against slower-growing fungi, such as Histoplasma capsulatum and Coccidioides immitis. It was found to have strong antifungal activity in vitro against the major fungus pathogens of man, with the exception of C. immitis and the ringworm fungi. In experimental fungus infection in white mice the different lots of candicidin available varied in antifungal potency and in toxicity, presumably because candicidin is still an impure substance. The results must, therefore, be considered as provisional. The preparations of candicidin used in these experiments afforded marked protection in moniliasis, blastomycosis, and sporotrichosis of mice. There was a significant but perhaps not strikingly protective effect in histoplasmosis and torulosis under the conditions of the experiment. The course of experimental coccidioidomycosis was not affected by this antibiotic. Candicidin appears to be a promising therapeutic agent because it possesses both fungicidal and fungistatic properties, but in its present state of purification, candicidin is too toxic to be injected subcutaneously or intramuscularly. Preliminary studies have shown that it is not absorbed orally. In humans the only possible route of administration would be intravenous infusion of dilute solutions by slow drip. A potential use of candicidin would be the prevention of development of a yeast-like fungal flora in the gastrointestinal tract of those receiving such antibiotics as aureomycin, oxytetracycline (Terramycin), and chloramphenicol. The simultaneous administration of candicidin with the orally administered antibacterial antibiotics may possibly suppress the development of a Candida flora. Preliminary studies in mice indicate that this is possible.

Poliomyelitis Virus in Human Blood.—Poliomyelitis virus was isolated from the blood of four children in one family during a poliomyelitis epidemic in Ohio in 1952. Three of the children had characteristic clinical pictures of the minor illness or abortive poliomyelitis, and one was asymptomatic. All were found to have virus in the throat and feces as well as in the blood. In none did signs or symptoms of the major illness appear, either paralytic or nonparalytic. As with a similar case that had been reported earlier, all of the children were excreting virus in the stools at the time it was found in the blood. Evidence is thus accumulating that viremia can occur in the human infection as it does in chimpanzees and cynomolgus monkeys, and, as with the latter, it is not associated with the clinical appearance of central nervous system signs but occurs several days earlier in association with the minor illness, or in the asymptomatic infection probably several days after exposure. Whether or not viremia can occur also in the incubation period of the single or double phase illness has not yet been demonstrated. In any event, the presence of viremia early in the course of human, as well as experimental, infection supports earlier hypotheses of rapid virus multiplication outside the central nervous system. Whether this multiplication occurs in neural or non-neural elements is not as yet certain. Different opinions are cited and the authors feel that the problem can only be resolved by demonstrating directly the early presence or absence of virus in various neural and non-neural tissues after administration of the virus by various routes.

82:547-800 (April) 1953. Partial Index

Comparative Study of Epinephrine and Epinephrine-Like Substance Obtained from Autolyzing Adrenal Glands. R. G. Roberts and D. M. Hilker.—p. 556.
Enhancement of Canine Isohemagglutinin A by Heat Labile Serum Factor, Probably Complement. F. Stohlman Jr.—p. 562.
Induction of Diabetes Insipidus in Adrenalectomized Dogs with Cortisone. W. W. Swingle, E. J. Fedor, M. Ben and others.—p. 571.
Evaluation of Agar Dilution Method for Determination of Sensitivity of Bacteria to Antibiotics. W. E. Schatten and R. F. Parker.—p. 574.
Augmentation of Nitrogen Mustard Induced Leukopenia by Cortisone. B. Levine and A. S. Weisberger.—p. 580.
Effect of Motor Cortex Ablations on Reflex Myoclonus in Monkeys. C. Lombroso and J. K. Merlis.—p. 591.
Effects of p-Aminosalicylic Acid on Thyroid and Adrenal. T. Wong, J. R. Hogness and R. H. Williams.—p. 598.
Simple Direct Method for Absolute Basophil Leucocyte Count. J. E. Moore III and G. W. James III.—p. 601.
*Production of Pituitary Tumors in Mice by Chronic Administration of Thiouracil Derivative. G. E. Moore, E. L. Brackney and F. G. Bock. —p. 643.
*Determination of Deuterium Exchange Rates Between Maternal Circulation and Amniotic Fluid. A. A. Plentl and D. L. Hutchinson.—p. 681.
Gonadotropins of Pituitary Gland and Urine of Adult Human Male. R. C. Bahn, N. Lorenz, W. A. Bennett and A. Albert.—p. 777.

Pituitary Tumors in Mice Caused by Propylthiouracil.—Data are presented on four mice treated for 18 months with a diet to which propylthiouracil was added. On examination, three of the four mice had chromophobe adenomas of the anterior lobe of the pituitary. All four mice had carcinomas of the thyroid.

Exchange Rates Between Maternal Circulation and Amniotic Fluid.—The origin, the rate of formation, and the fate of amniotic fluid are controversial subjects. Morphological studies of cellular structures involved did not reveal why large amounts of amniotic fluid are formed in certain pathological states nor could it explain the rapid rate of replacement in the normal pregnant organism as demonstrated by Flexner and his associates. These authors concluded that the amniotic fluid is completely replaced once every 2.9 hours. Such a rapid turnover rate is contrary to the prevailing opinion that the amniotic fluid represents a stagnant pool. Regarding the pregnant organism as a multicompartmented system, the authors decided to determine the exchange rate of the water in amniotic fluid with the water of the maternal and fetal systems. By the application of transabdominal catheters, placed into the amniotic sac of pregnant women at term, amniotic fluid could be withdrawn at desired intervals without disturbing the continuity of the system. The mechanism of tracer (deuterium) exchange was demonstrated to be that demanded by theory, and the application of well-known theoretic equations to the data so obtained permitted the calculation of absolute exchange rates. In two experiments where the isotopic tracer was first placed in one compartment (mother) and then in the other (amniotic fluid), the exchange rates in both directions were found to be about 600 cc. per hour. The observations of Flexner and his associates on the exchange rate of the water of the amniotic fluid are thus confirmed in principle.

Psychiatric Quarterly, Utica, N. Y.

27:1-184 (Jan.) 1953 Partial Index

Some Principles of Brief Psychotherapy. W. Bonime.—p. 1.
Fluctuation of Danish Psychiatric Admission Rates in World War II: Initial Decrease and Subsequent Increase (Trends in Psychiatric Hospital Admissions 1939-1948). B. B. Svendsen.—p. 19.
Carbon Dioxide Therapy. G. A. Silver.—p. 52.
Duration of Hospitalization, Readmission Rate and Stability of Diagnoses in Veterans Hospitalized with Neuropsychiatric Diagnosis. R. L. Jenkins, E. L. Bemiss Jr. and M. Lorr.—p. 59.
Value of Early Memories in Psychotherapy. R. J. Kahana, I. H. Weiland, B. Snyder and M. Rosenbaum.—p. 73.
Preliminary Study on Use of Flaxedil (Gallamine Triethiodide or Tri-[diethylaminoethoxy] benzene trioethyliodide). J. F. Neander and S. P. Alexander.—p. 83.
Family Setting and Social Ecology of Schizophrenia. D. L. Gerard and L. G. Houston.—p. 90.

Psychoanalytic Review, Albany, N. Y.

40:99-196 (April) 1953. Partial Index

Modified Psychoanalytic Therapy in Senescence. G. J. Wayne.—p. 99.
Self-Reporting in Group Psychotherapy. W. C. Hulse and R. G. Reens.—p. 117.
Psychology of Herman Melville. C. Kligerman.—p. 125.

Public Health Reports, Washington, D. C.

68:361-452 (April) 1953. Partial Index

*Effect of Fly Control on Diarrheal Disease in Area of Moderate Morbidity. D. R. Lindsay, W. H. Stewart and J. Watt.—p. 361.
The 1952 Encephalitis Outbreak in California. W. L. Halverson, W. A. Longshore Jr. and R. F. Peters.—p. 369.
Time Study of Public Health Activities in Mississippi. J. A. Milne, M. E. Rice, J. B. Hozier and G. B. Taranto.—p. 378.
Maternal and Child Health Services: Challenges and Aims. L. Baumgartner.—p. 397.
Cardiovascular Syphilis in General Medical Clinic. S. P. Lucia, V. C. Harp Jr. and M. L. Hunt.—p. 405.
Public Health in Indonesia. E. R. Jenney.—p. 409.
Trichinosis. V. B. Link, J. H. Steele, B. Schwartz and others.—p. 416.
Trichinosis Control and Vesicular Exanthema. J. C. Haldeman, J. H. Steele and R. J. Van Derwerker.—p. 421.
Hospital Beds in United States in 1953. J. W. Cronin, M. E. Odoroff and L. M. Abbe.—p. 425.
An Experiment with Group Conferences for Weight Reduction. A. L. Chapman.—p. 439.

Effect of Fly Control on Diarrheal Disease.—In an earlier investigation in Hidalgo County, Texas, flies were shown to be vectors of Shigella infections in an area with a high incidence of diarrheal disease. This paper presents the results of a study, very similar to the Texas study, made in an area of low to moderate morbidity from diarrheal disease. The area is in southern Georgia; its small communities are characteristic of the rural South in size, climate, and agricultural practices favorable to fly breeding, and in community sanitation that allows flies ready access to human excrement. Results of this study demonstrated that during effective fly control in an area of moderate diarrheal disease morbidity, the prevalence rate of Shigella infections and the morbidity rate from diarrheal disease were significantly lowered. Chemical insecticides of the residual type were used for control of adult flies. The development of housefly (Musca domestica) resistance to the DDT initially used resulted in its ineffectiveness in maintaining fly control after 10 months. The dieldrin and chlordane sprays substituted for DDT resulted in excellent fly control for about three months. After that period these insecticides became even less effective than DDT. The fact that the period of effective fly control was the only time during the 32 months of this study that the prevalence rate of Shigella infection was significantly lower in the treated towns than in the untreated towns is convincing evidence that flies were vectors of Shigella organisms.

68:453-548 (May) 1953. Partial Index

Poliomyelitis Distribution in the United States. R. E. Serfling and I. L. Sherman.—p. 453.
Fog and Deaths in London, December 1952. J. A. Scott.—p. 474.
Looking Back to Look Ahead in Rural Health. F. S. Crockett.—p. 480.
*Climate and Endemic Dental Fluorosis. D. J. Galagan and G. G. Lamson Jr.—p. 497.
United States Pharmacopeia. L. C. Miller.—p. 510.
National Formulary. J. L. Powers.—p. 513.
New and Nonofficial Remedies. R. T. Stormont.—p. 515.

Climate and Endemic Dental Fluorosis.—The range of fluoride concentration most effective in preventing dental caries was established at approximately 1.0 to 1.5 ppm. These fluoride levels were determined from observations made principally in the Midwest, where mean annual temperatures are approximately 50 F (10 C). A probable relationship between fluoride concentration and climate is now being observed in instituting fluoridation of water supplies. For example, in Wisconsin, 1.3 ppm, is recommended, and in Florida, 0.7 ppm. Studies were made on the prevalence and severity of endemic dental fluorosis in 726 children in six Arizona communities in a desert area, with mean annual temperatures of approximately 70 F, mean relative humidities of approximately 37%, and extremely high daytime temperatures. In these Arizona communities concentrations of fluoride above 0.8 ppm. resulted in objectionable dental fluorosis; concentrations of 0.6 to 0.8 ppm. resulted in an occasional diagnosis of fluorosis; concentrations below 0.6 ppm. did not cause objectionable fluorosis. Arizona children drink more water than children living in more temperate climates because of climatic influences, and as a result, there is increased ingestion of fluoride in relation to the concentration found in the water. Comparisons of the fluorosis indexes in the Arizona communities with those in midwestern communities revealed that fluorosis occurs at about twice the intensity in Arizona than it does in the midwestern area with comparable fluoride concentration but different climatic factors.

Radiology, Syracuse, N. Y.

60:485-640 (April) 1953

Differential Diagnosis of Chronic Perforating Carcinoma of Colon. C. A. Stevenson and A. W. Sommer.—p. 485.
Double-Contrast Examination of Colon. J. B. Douglas.—p. 490.
*Routine Search for Colonic Polyps by High-Voltage Radiography. C. Gianturco and G. A. Miller.—p. 496.
*Dilute Contrast Media in Diagnosis of Lesions of Colon. R. M. Potter.—p. 500.
Double-Contrast Examination of Colon with Special Emphasis on Studies of Sigmoid. R. D. Moreton.—p. 510.
*Reduction of Ileocecal Intussusception by Hydrostatic Pressure. B. R. Girdany, L. W. Bass and G. W. Grier.—p. 518.
Detection of Early Carcinoma of Stomach: An Evaluation of Roentgen Examination of Patient with Gastrointestinal Symptoms. F. J. Bonte and H. L. Friedell.—p. 527.
Annular Pancreas. A. R. McGee, L. W. Black and H. Beattie.—p. 532.
Roentgen Features of Pulmonary Tuberculoma. C. C. Wang.—p. 536.
Roentgen Amniography: Valuable and Safe Aid to Obstetrical Diagnosis. E. M. Savignac.—p. 545.
Left Atrial Calcification: Report of Eight Cases Verified at Surgery for Relief of Mitral Stenosis. J. L. Curry, J. S. Lehman and E. C. H. Schmidt.—p. 559.
Malignant Lesions of Tonsil. D. B. Parshall and K. W. Stenstrom.—p. 564.
Late Effects of Thorotrast in Tissues. A. P. Prezyna, W. W. Ayres and W. C. Mulry.—p. 573.
Lethal Dose of Whole-Body Tantalum^{182} Gamma Irradiation for Burro (Equus Asinus Asinus). J. H. Rust, J. L. Wilding, B. F. Trum and others.—p. 579.
Plastic Vaginal Cylinder: Accessory to Expanding Cervico-Uterine Radium Applicator. E. C. Ernst, E. C. Ernst Jr. and R. P. Ernst.—p. 583.
Roentgenographic Study of Transitory Synovitis of Hip Joint. L. Drey.—p. 588.
Palm Thorns as Cause of Joint Effusion in Children. R. G. Karshner and W. Hanafee—p. 592.

Search for Colonic Polyps by High-Voltage Radiography.—Routine proctoscopy and high-voltage roentgen examination of the colon may be expected to show colonic or rectal polyps in approximately 10% of adult patients, regardless of symptoms. Some polyps are malignant when first discovered and others may undergo malignant change; consequently, their early detection and treatment will prevent the development of a substantial number of cancers of the large intestine. The high-voltage technique requires a barium mixture just dense enough to be fully opaque when fluoroscopy is conducted at 80 or 85 kv. A mixture of this density will become radiographically transparent at 120 to 130 kv. The high-voltage radiographic exposure should be such as to show one loop of the colon through another. Polyps will appear as translucent shadows when the density of the barium is properly balanced against the quality of the roentgen rays. Preparation of the patient is extremely important because translucent shadows may also be caused by gas or fecal material. A diagnosis of colonic polyp is made only if the shadow is shown by two separate examinations. Routine use of high-voltage radiography for one year (March, 1951, to March, 1952) in 1,552 patients resulted in the discovery of polyps in 42 (2.7%). Almost the same incidence was reported by Lawrence (2.8% in 7,000 autopsies). Radiography, however, cannot be relied on for the discovery of rectal polyps, which can best be found by proctoscopy. The proctoscopic study may be limited to the length of the rectum and is almost free from discomfort. Its importance may be seen from the fact that when it was carried out as a routine measure in 365 patients, it resulted in the discovery of 28 rectal polyps (7.6%).

Dilute Contrast Mediums in Diagnosis of Lesions of Colon.—Early and accurate diagnosis of small lesions, particularly those of a polypoid type, offers the best hope for successful treatment of cancer of the colon. Statistics indicate that lesions of the colon or the rectum will be multiple in from 30 to 40% of all cases. The finding of a single polyp should lead to a careful search of the entire bowel above the range of direct vision. A good outline of the filled colon, both fluoroscopically and on the roentgenograms, can be obtained by using a contrast medium of lesser density (4½ oz. [135 gm.] of barium sulfate to a quart [a liter] of water with suitable suspending agents) than that ordinarily employed, while at the same time displacement of the medium by small intraluminal masses will be clearly shown on films made with high kilovoltage technique (85 to 100 kv.). Numerous lesions less than 1 cm. in diameter can be detected by this method. The sharpness of the fluoroscopic image with a barium enema suspension of this density depends on the volume of barium distending the lumen. Any region where the bowel will not distend is an area of interest to the examiner and an indication for film studies. Any area of lessened density where the barium is displaced in the lumen of the bowel is considered suggestive of an intraluminal mass; if it appears on the film with similar size, shape, and position or if a pedicle is demonstrated, a polypoid lesion must be considered. The diagnosis should rest on repeated examinations in which the lesion is repeatedly demonstrated. Examination of the colon by this method will not only reveal small lesions but will also show all the other details usually sought for in routine barium enema studies.

Reduction of Ileocecal Intussusception by Hydrostatic Pressure.—Hydrostatic pressure by barium enema, properly used, is the treatment of choice for ileocecal intussusception in infants and young children. It has been used routinely in 27 infants from 3 months to 3 years old during the past two years at the Children's Hospital of Pittsburgh and was successful in 22. Surgery was needed to complete the reduction in four cases, and one child who was in critical condition when admitted died the following day although the intussusception had been completely reduced. Successful use of this method requires the patient to be under constant physical control. A 6 in. (15 cm.) nonelastic bandage is wrapped around the legs; a piece of stockinette of the appropriate size is pulled over the arms; and immobilization is completed by heavy sandbags placed on either side of the body. Retention of the barium enema is assured by inserting an ungreased Bardex catheter, child's size, into the rectum and using adhesive tape to keep the buttocks in close apposition. Neither the patient nor the examiner should be unduly exposed to radiation and the use of adhesive tape makes it unnecessary for an assistant to keep his hand in the field of direct radiation. The immobilized infant is usually quiet and often sleeps during the intervals between recurrent colicky abdominal pains. The gastric contents are aspirated, and a thin barium-water mixture is then allowed to flow into the colon from an enema can 3 ft. (1 m.) above the table. The progress of the enema is followed under fluoroscopic observation. Gentle manipulation may safely be used to aid in the reduction, which is considered complete when the barium mixture flows freely through the ileocecal valve into the terminal ileum. Failure of reflux does not necessarily mean that reduction is incomplete, but if a good flow is absent, the most conclusive roentgen sign of complete reduction is lacking. The clinical condition of the patient is then evaluated and if it indicates that reduction has been completed, 8 or 10 hours may be allowed to elapse before the decision for surgical intervention is made. Operation will be required if signs of intestinal obstruction persist after hydrostatic reduction. Duration of symptoms for more than 12 hours does not in itself contraindicate an attempt at hydrostatic reduction, but caution is needed when signs of intestinal obstruction and shock are present. Dehydration and shock must be treated before any method of reduction is tried. Manifest signs of peritonitis are indications for surgical treatment. Roentgenologists fully acquainted with the clinical aspects of intussusception and expert in the technique and evaluation of its hydrostatic reduction will be prepared, with the surgeon, to assume responsibility for its diagnosis and first treatment; those with less experience should carry out the surgeon's instructions, leaving all important decisions to him.

Review of Gastroenterology, New York

20:281-352 (May) 1953

SYMPOSIUM ON BLEEDING ESOPHAGEAL VARICES AND THE PROBLEM OF PORTAL HYPERTENSION

Portal Systemic Shunts in Management of Portal Hypertension with Massive Gastrointestinal Hemorrhage. J. W. Lord Jr.—p. 295.
Clinical Evaluation of Ligation of Hepatic and Splenic Arteries in Treatment of Cirrhosis of Liver. J. L. Madden.——p. 300.
Physiology and Pathology of Cirrhotic Liver. M. A. Payne.—p. 302.
Mediastinal Packing for Bleeding Esophageal Varices Associated with Portal Hypertension. E. M. Kent.—p. 307.
Present Status of Radioisotopes in Gastroenterology. L. A. Erf.—p. 314.
Postcholecystectomy Syndrome. R. Upham.—p. 321.
Submucosal Gastric Hematoma: Complication of Vacuum-Tube Biopsy Technic. E. D. Palmer and V. M. Smith.—p. 330.

Southern Medical Journal, Birmingham, Ala.

46:405-528 (May) 1953. **Partial Index**

Today's Challenge to Medicine. W. H. Anderson.—p. 405.
The Problem Drinker in Industry. H. R. Masters.—p. 413.
Two-Year Survey of Antabuse® Therapy in Chronic Alcoholism. C. W. Stevenson and J. A. Wallace.—p. 422.
*Fumagillin as an Amebacide: Preliminary Report. G. McHardy, J. E. Bechtold, G. E. Welch and D. C. Browne.—p. 428.
Detection of Carcinoma of Stomach in Patients with Pernicious Anemia: Review. R. M. Bird.—p. 434.
Clinical Selection and Preoperative Preparation of Patients with Mitral Stenosis for Surgical Treatment (Commissurotomy). D. W. Chapman, R. H. Skaggs, I. M. Johnson and others.—p. 439.
Elective Proctologic Surgery in the Aged. B. R. Jackson.—p. 442.
*Non-Malignant Roentgen Changes in Gastro-Intestinal Tract Associated with Aging. E. L. Pirkey, L. A. Pilla and D. E. Pipkin.—p. 446.
Adenomatous Polyps of Colon. D. W. Smith and D. Sprouse.—p. 449.
Bleeding in Recurrent Low Grade Diverticulitis of Sigmoid. H. G. Bell. —p. 453.
Management of Intersexuals. R. N. Creadick.—p. 455.
Changing Concepts in Diagnosis and Complications of Orbital Inflammation. A. H. Keeney.—p. 460.
X-Ray Therapy in Treatment of Hemangiomas. W. W. Wilson.—p. 464.
Bursitis and Peritendinitis: Diagnosis and Treatment. J. C. King and C. K. Mahaffey.—p. 469.
Surgical Management of Emphysematous Blebs and Bullae. F. N. Cooke and B. Schaff.—p. 474.
Complications of Hip Prostheses Application. E. G. Lipow.—p. 481.
Treatment of Tumors of Testes. J. C. Kimbrough and A. A. Borski. —p. 486.
Study of Fetal Mortality in Cesarean Section. J. A. King, E. L. King and M. B. Pitt.—p. 491.

Fumagillin as an Amebicide.—The crystalline form of fumagillin, derived from Aspergillus fumigatus, proved in in vitro tests to be an effective amebicide both in the presence and in the absence of mixed bacterial flora. In vivo studies in experimentally infected laboratory animals revealed surprising innocuousness and tolerance of greater than therapeutic doses. In tolerance trials on 10 volunteer students, the authors started with daily doses of 10 mg. and increased this by increments of 10 mg. to a maximum of 100 mg. daily. Anorexia occurred with doses of 30 mg., and nausea and abdominal discomfort with 60 mg. Mild diarrhea occurred in some with 70 mg. doses, and mild vertigo occurred in most cases with doses over 60 mg. The authors used fumagillin in 134 ambulatory patients. Requirements for treatment with fumagillin was identification of Endamoeba histolytica cysts or trophozoites in stools obtained by diarrheal defecation, saline purgation, or proctosigmoidoscopy. Three examinations at monthly intervals, including tests on stools obtained by purgation and proctosigmoidoscopic and radiographic evidence of ulcer healing when there was initial ulceration, were required to establish eradication of amebiasis. Sixty-four cases satisfied all requirements and are evaluated. These included 12 cases of acute amebic ulcerative colitis, 18 of chronic amebic ulcerative colitis, and 34 in which there were no symptoms but Endamoeba histolytica organisms were found. In 22 patients in whom amebic ulceration was present on initial proctosigmoidoscopic examination, complete healing resulted. One single large rectosigmoid ulceration persisted but no amebas were present. In nine patients significant roentgenographic findings subsided completely after therapy. Other parasites such as Trichomonas, Trichuris, and Giardia organisms were also largely eradicated, but Ascaris and Strongyloides parasites were not greatly influenced. Endamoeba organisms other than histolytica were eradicated in some patients. The authors conclude that fumagillin is amebicidal for intestinal amebiasis.

Nonmalignant Changes in Gastrointestinal Roentgenograms of Aged Persons.—Pirkey and associates point out that many nonmalignant conditions are often seen in elderly persons. The esophagus is the site of a change in innervation that is manifested in elderly persons by a process known as tertiary contractions. Aortitis with increased tortuosity of the aorta and associated periaortic scar tissue will produce esophageal displacement, which may be sufficient to cause difficulty in swallowing. This is usually on an arteriosclerotic or syphilitic basis. Swallowing of large boluses of food because of dental disorders by older persons is thought to contribute to production of pulsion diverticula of the esophagus. Traction diverticula of the esophagus result from scar tissues pulling on the esophagus from the adjacent lymph nodes at the tracheal bifurcation. The commonest nonmalignant roentgenologic change in the stomach of elderly patients is that of hiatus hernia in which the esophageal hiatus is relaxed and a varying amount of the stomach enters the opening. Duodenal diverticula are very commonly seen on roentgenograms. Diverticula of the jejunum are uncommonly reported. Many elderly patients with vague gastrointestinal complaints have a coarse small intestinal pattern with clumping of the barium and loss of the normal mucosal pattern. This may be due to avitaminosis. Volvulus of the colon may occur, and usually involves the sigmoid portion; volvulus of the cecum is less common. The commonest change seen in the gastrointestinal tract of the aged is diverticulosis. Diverticula are asymptomatic but may be the site of complications, such as inflammation, perforation, fistula formation, and bleeding. Correct diagnosis and the institution of proper treatment in these nonmalignant conditions will frequently be lifesaving.

Surgery, St. Louis

33:639-798 (May) 1953

New Instruments for Cardiac Surgery. A. M. Dogliotti and G. Guglielmini.—p. 639.
Autologous Tissue Tubes for Aortic Grafts in Dogs. E. C. Peirce II.—p. 648.
Abdominal Aortic Aneurysm: Resection with Preservation of the Lumen. T. G. Barnes and G. H. Yeager.—p. 658.
Ligation of Hepatic and Splenic Arteries for Advanced Periportal Cirrhosis. J. A. Witter and M. First.—p. 663.
Exposure Method in Treatment of Severe Second and Third Degree Burns. L. M. Rousselot, J. F. Connell Jr. and W. P. Whalen.—p. 673.
Relation of Pancreas to Blood Coagulation. J. Storer and P. Kazdan.—p. 683.
Spinal Complications Following Lumbar Puncture: Review of Literature and Report of Four Cases. S. F. Redo.—p. 690.
Extending Zone of Resection for Carcinoma of Rectum and Sigmoid. V. C. Waite.—p. 702.
Stainless Steel Mesh Prosthesis for Immediate Replacement of Hemimandible. J. N. Attie, A. Catania and C. B. Ripstein.—p. 712.
Studies in Utilization of Fructose Administered Intravenously in Man. J. M. Beal, J. L. Smith and P. M. Frost.—p. 721.
Clinical Experiences in Use of N-Allylnormorphine (Nalline) as Antagonist to Morphine and Other Narcotics in Surgical Patients. J. Adriani and M. Kerr.—p. 731.

Surgery, Gynecology and Obstetrics, Chicago

96:509-628 (May) 1953

Argument for Preoperative Radiation in Treatment of Breast Cancer. C. L. Ash, V. Peters and N. C. Delarue.—p. 509.
Arterial Embolism with Notes on Operative and Anticoagulant Therapy. W. C. McGarity and R. L. Robertson.—p. 522.
Experimental Production of High Interventricular Septal Defects: Physiological and Pathological Study. J. H. Kay, V. Thomas and A. Blalock.—p. 529.
*Fate of Recurrent or Persistent Parotid Tumors. D. P. Slaughter, H. W. Southwick and L. Walter.—p. 535.
Hyperchloremic Acidosis: Study of Mechanism in Ureterosigmoidostomy. A. W. Bohne and C. E. Rupe.—p. 541.
Review of Effectiveness of Early Treatment in Breast Cancer. A. S. Kraus.—p. 545.
Control of Infections Associated with Obliterative Arterial Disease. C. W. Howe and W. C. Wigglesworth.—p. 553.
Effect of Leg Traction on Ruptured Intervertebral Discs. S. F. Rothenberg, H. A. Mendelsohn and T. J. Putnam.—p. 564.
Postoperative Intestinal Obstruction. W. S. McCune and J. M. Keshishian.—p. 567.
*Treatment of Esophageal Varices by Transesophageal Obliteration. G. Crile Jr.—p. 573.
Blood Iodine Levels in Pregnancy and Abortion. K. P. Russell.—p. 577.
Effect of Polyvinylpyrrolidone in Obstetrical Cases. A. C. Posner, J. W. V. Cordice Jr. and J. Scudder.—p. 581.
Wound Healing in the Uterus. O. W. Hess.—p. 584.
Ligation of Hepatic and Splenic Arteries in Treatment of Cirrhosis of Liver. J. L. Madden.—p. 594.
Contractures of Iliotibial Band. E. W. Johnson Jr.—p. 599.
Production by Liquid Nitrogen of cute Closed Cerebral Lesions. R. A. Clasen, D. V. L. Brown, S. Leavitt and G. M. Hass.—p. 605.
Experimental Evaluation of Pulmonary Function and Lung Substance Distal to Transection or Resection of Tracheobronchial Segments. L. B. Kiriluk, W. A. Ricker Jr. and K. A. Merendino.—p. 617.

Parotid Tumors.—Slaughter and associates review observations on 212 patients with tumors of the parotid gland, which included 124 benign mixed tumors (60% of the total) and 55 malignant tumors (26%). About 15% of the parotid swellings investigated surgically were benign lesions not classified as mixed tumors. Thirty-six, or nearly one-third, of the 124 mixed tumors were recurrent after surgical treatment when first seen by the authors. These recurrent tumors were essentially of the ordinary or "average" mixed tumor type, without marked cellularity and with relatively abundant myxomatous stroma and occasional "cartilaginous" areas. In contrast, the malignant tumor group included 12 that probably originated from preexisting mixed tumors. In eight of these for which previous excisional material was available for study, the original tumor was highly cellular, of unusual cell pattern, or of a suggestively atypical cell type, but none of them justified originally a diagnosis of cancer. Recurrence was probably due to incomplete excision, and the growth characteristics of the residual tumor became cancerous. The rare lymphosarcomas and an occasional hemangioma may be indications for radiation therapy, but all other parotid tumors are surgical problems. The authors agree with the modern concept that no benign parotid tumor should be enucleated, but that either a superficial lobectomy or a total parotidectomy should be done. Superficial lobectomy should suffice for the majority of mixed parotid tumors, total parotidectomy being required only occasionally for tumors of the deep lobe. Since clinically innocent lesions may be malignant, every parotid tumor should be identified before the patient leaves the operating room. This means that frozen sections should be examined at once. If an infiltrating malignant tumor is diagnosed, then a total parotidectomy should be performed, with sacrifice of the facial nerve, because if the surgeon does not remove it or any other involved tissue, the tumor will. When cervical node metastases are present, a radical neck dissection should be done.

Treatment of Esophageal Varices by Transesophageal Obliteration.—Crile reported in 1950 preliminary results in seven children and young adults who had bled frequently and severely from esophageal varices and who were treated by transesophageal ligation of the esophageal veins. These patients had normal livers, the varices being the result of a congenital block of the portal or the splenic vein. Since the report, two additional cases have been treated in this manner and the original seven patients have been observed for up to 48 months since the operation. Only two of the nine patients bled after the operation; one had two small hemorrhages soon after the operation and has had none since; the other appears to be bleeding from a gastric ulcer. It appears, therefore, that transesophageal ligation of esophageal varices is safe in dealing with esophageal varices that are secondary to extrahepatic blocks of the portal or the splenic vein, and that in these cases the radical operation consisting of resection of the lower esophagus and the upper part of the stomach, which involve high mortality and morbidity, is not necessary. Transesophageal ligation of esophageal varices is much like a hemorrhoidectomy. The three large veins look like the three large groups of hemorrhoids. The control of bleeding after their obliteration appears to be as complete as after a hemorrhoidectomy. Although hemorrhoids occasionally do recur, the recurrences result from incomplete operation rather than from the formation of new channels. Since a good hemorrhoidectomy usually affords permanent relief, removal of the rectum to control bleeding from hemorrhoids is not considered. If bleeding from esophageal varices can be as readily controlled by obliteration of the esophageal veins, it is hoped that resection of this area will be as unnecessary as removal of the rectum for hemorrhoids. There have been no deaths or serious complications following transesophageal ligation of esophageal veins. The operation has not yet been tried in patients with esophageal varices secondary to cirrhosis of the liver.

Tennessee State Medical Assn. Journal, Nashville

46:121-158 (April) 1953

Task Ahead. A. M. Patterson.—p. 121.
"Shall We Coast Now—Or Forge Ahead?" D. W. Smith.—p. 125.
Physiology in Daily Practice of Surgery. J. M. Hardy.—p. 127.
Treatment of Hyperemesis Gravidarum. S. C. Cowan Jr. and R. C. Stuntz.—p. 132.
Management of Thyroid Disease. L. W. Trent.—p. 135.
Vitamin-D Poisoning. A. Weinstein.—p. 140.

Texas Reports on Biology and Medicine, Galveston

11:1-178 (No. 1) 1953. Partial Index

Research on New Clotting Factors. P. de Nicola.—p. 3.
Failure to Demonstrate Virus in Vagus Nerves of Patients with Chronic Recurrent Duodenal Ulcer. E. D. Palmer and R. L. Reagan.—p. 46.
Role of Spleen in Resistance to Experimental Tumors. M. Pollard and R. Bussell.—p. 48.
Complement Fixation Reactions in Serum Hepatitis. M. Pollard and R. Bussell.—p. 58.
Electron Microscopic Studies of Virus of Varicella (Chicken Pox) from Monkey Serum. R. L. Reagan, W. C. Day, S. Moore and A. L. Brueckner.—p. 74.
Electron Microscopic Studies of Herpes Simplex Virus After Propagation in Swiss Albino Mouse. R. L. Reagan, F. M. Sansone, S. Moore and A. L. Brueckner.—p. 79.
Biochemical and Biophysical Mehods in Cardiovascular Research. R. F. Redmond, L. J. Milch, W. W. Calhoun and others.—p. 83.
Acute Anemia Produced by Phenylhydrazine Hydrochloride in Duck: Observations on Nucleated Erythrocytes in Vivo. R. H. Rigdon.—p. 110.
Rapid Procedure for Determining Relative Antibiotic Sensitivities of Microorganisms. D. E. Singer, L. V. Pierce, E. C. Yawn and others.—p. 122.
Use of Polyvinylpyrrolidone as Plasma Volume Expander in Preventing or Combating Shock. A. O. Singleton, Jr.—p. 138.
*Survey of Typhus in Rats and Rat Ectoparasites in Galveston, Texas. R. W. Strandtmann and D. J. Eben.—p. 144.

Typhus in Rats and Rat Ectoparasites.—A survey of murine typhus among rats and ectoparasites of rats was conducted in Galveston, Texas, from February, 1945, through July, 1947. Only brown rats (Rattus norvegicus) were captured. The complement fixation test on rat bloods gave the following results: In 1945, blood of 63% of 141 rats was positive for typhus; in 1946, blood of 58.8% of 131 rats was positive; and in 1947, blood of 32.7% of 110 rats was positive. The 1947 reduction was probably due to a city-wide DDT dusting program which materially reduced the number of rat fleas. Small lots of ectoparasites brushed off the rats that had been anesthetized with chloroform were inoculated intraperitoneally into laboratory animals to test for typhus. Species tested were the oriental rat flea (Xenopsylla cheopis), the common rat flea (Leptopsylla segnis), the stick-tight chicken flea, the cat flea, Nuttall's rat mite (Laelaps nuttalli), the tropical rat mite (Bdellonyssus bacoti), and the louse. Results showed that the oriental rat flea is probably the chief vector of typhus among rats. Dusting rat runs and rat harborages with DDT materially reduced the number of fleas without materially affecting mites and lice. The reduction in the number of fleas was accompanied by a reduction in the number of rats with positive blood and also a pronounced reduction in the number of cases of human typhus. Seasonal variation in abundance was not apparent in the oriental rat flea, but the common rat flea definitely decreased in late summer and fall. The tropical rat mite also decreased in number during summer and fall, but Nuttall's rat mite was equally abundant throughout the year. Lice were the most numerous and most evenly distributed rat ectoparasites. There was no apparent seasonal variation in their abundance.

Texas State Journal of Medicine, Fort Worth

49:205-270 (April) 1953

Treatment of Oral Cavity Cancers: Present Status of Radiotherapy. G. H. Fletcher.—p. 209.
Carcinoma of Esophagus: Surgical Treatment. W. D. Seybold.—p. 214.
*Multiple Primary Cancer of Bowel, Bladder, and Skin. C. Phillips.—p. 219.
Carcinoma of Cecum: Acute Appendicitis as Presenting Symptom. J. F. Thomas.—p. 222.
Diagnosis of Spinal Cord Tumor. S. R. Snodgrass.—p. 227.
Lactating Adenoma of Breast. A. J. Gill, J. A. Stirman and C. E Gordon.—p. 231.
Malignant Neoplasia of Normally Situated and Heterotopic Lymphoid Tissue and Its Numerical Microscopic Grading. A. C. Broders.—p. 234.
Studies on Inheritance of Hemophilia by Laboratory Tests. J. M. Hill, G. Crass, J. Ellis and K. P. Wittstrück.—p. 241.

Multiple Primary Cancers.—One in 20 patients with cancer of the large bowel seen at the Scott and White Clinic in Temple, Texas, had another cancer in the large bowel either simultaneously or subsequently. In another study of 1,202 patients with cancer of the large bowel, it was found that new malignant neoplasms developed in other organs and sites in 8% of the cases. In the 10 year period ending with 1950, 100 patients were observed with cancer of the bladder microscopically verified, and 39% of these were multiple primary cancers. Of over 5,000 individual lesions of skin cancer observed over a 20 year period, all microscopically verified, multiple primary lesions were observed in 25%. In the bowel, bladder, and skin most cancers are accessible for diagnosis by palpation and modern roentgenologic and endoscopic techniques. Multiple primary cancers may occur in any of the organs named simultaneously, in sequence, or later in separate organs. Recognition of the importance of these facts affects case histories, treatment, and prognosis and is an important element in cancer control.

U. S. Armed Forces Med. J., Washington, D. C.

4:639-794 (May) 1953. Partial Index

Treatment of Pulmonary Complications Secondary to Upper Respiratory Infections. R. Denton, E. A. Keller, A. A. Hoffman and J. A. Jarman.—p. 643.
Practical Value of Cardiopulmonary Function Tests. A. A. Siebens, M. M. Newman, G. A. Smith and C. F. Storey.—p. 653.
Gastric Diverticulum and Transthoracic Approach. J. B. Seaman.—p. 665.
Management of Acute Head Injury. J. A. Jarman.—p. 673.
Preventive Psychiatry in Combat Zone. A. J. Glass.—p. 683.
Muscle-Conditioning Machine. R. W. Augustine, L. M. Kuehler, W. E. Landmesser Jr. and others.—p. 693.
Simultaneous Recording of Electromagnetic Ballistocardiogram and Electrocardiogram on Single Channel. M. H. Green.—p. 699.
Epidemiologic Study of Tuberculosis in Civilian Employees. J. R. Mathews.—p. 711.
Modification of Ileocolostomy, with Exclusion Operation for Terminal Ileitis. H. F. Bertram.—p. 715.
Subcoma, Coma, and Convulsive Carbon Dioxide Therapy. W. E. Wilkinson.—p. 719.
Unusual Complications of Trocar Cystostomy. A. A. Borski and J. C. Kimbrough.—p. 729.
Ehlers-Danlos Syndrome. M. L. Samuels, M. L. Schwartz and M. M. Meister.—p. 737.
Spontaneous Rupture of Umbilical Hernia. E. J. Rupnik and R. B. Brown.—p. 747.
Management of Truamatic Cysts of Mandible. S. L. Orlean and A. Gottlieb.—p. 751.
Favorable Response of Atypical Hemophilia to Calcium. H. Kramer, W. N. Donovan and M. F. Beard.—p. 761.
Isospora Infection in Man. W. H. Wells and A. J. Bucki.—p. 769.
Extravasated Metallic Mercury Simulating Osteomyelitis. V. B. Vare Jr.—p. 773.

FOREIGN

Acta Chirurgica Belgica, Brussels

52:195-334 (March) 1953

Vascular Grafts and Artery Bank: Experimental Study. E. Henrotin and R. Veroft.—p. 197.
Sequelae of Wrist Fractures. R. Soeur.—p. 231.
*Leriche Syndrome: Resection of Aortic Bifurcation. Result After Two and One-Half Years. J. Cahen.—p. 247.
*Pathogenesis and Surgical Treatment of Obliteration of Aortic Bifurcation. P. van der Linden.—p. 258.
Experimental Contribution to Study of Methods of Surgical Treatment of Arterial Obliteration. M. van der Ghinst.—p. 271.

Leriche Syndrome: Resection of Aortic Bifurcation.—Obstruction of the aortic bifurcation may occur suddenly as the result of embolism, or it may develop slowly and insidiously as part of a thrombotic process involving the iliac arteries. Ready fatigability and general atrophy of the legs, cramps in the calf muscles, pallor of the feet and legs even in a standing position, absence of a pulse in the femoral or dorsalis pedis arteries, and sexual impotence characterize the syndrome as a whole, but in the early stages of the disorder the symptoms may be so mild that they are disregarded. The progress of the disorder depends on the length of time it takes the obstruction to become complete, the condition of the rest of the arterial system, the relative importance of the compensatory collateral circulation, and possible supervening spasms of the vessels, but sooner or later, unless surgical treatment can be successfully carried out, gangrene will develop. Treatment must be individualized; high sympathectomy gives excellent results in some cases, but is being largely replaced by resection of the bifurcation, procedures designed to remove the clot from the vessels, and arterial grafts. Restoration of the circulation by a graft is the treatment of choice when the arteries are free from lesions, but when atheromatous plaques and calcifications are present resection is indicated. Follow-up of a 51-year-old patient incapacitated by this syndrome who was treated by resection of the bifurcation two and one-half years earlier showed that he was able to work regularly again; he could climb stairs and walk without discomfort; his feet no longer felt cold; and he had gained 8 kg. in weight.

Pathogenesis and Surgical Treatment of Obliteration of Aortic Bifurcation.—Obliteration of the aortic bifurcation may be caused by an embolus; by an obstruction limited to the bifurcation and apparently dependent on a preexisting stenosis; or by the upward extension of obstructions in the femoral and iliac arteries. Embolism of the aortic bifurcation requires immediate surgical treatment if the patient's death from gangrene is to be prevented. Patients with stenosis of the bifurcation usually complain of vague pains in the legs and buttocks on effort or after long walks; they may have subjective hypothermia of the extremities; their sexual potency is sometimes reduced; and wasting is often observed in the muscles of the thighs and pelvis. Aortography shows irregularity at the lower end of the aorta and marked narrowing at the origin of the iliac arteries. These phenomena are probably due to the atheromatous lesions often found in this area. Lumbar sympathectomy at this stage of the disorder may be ineffective and psychologically injurious; a patient in whom complete obliteration of the bifurcation developed after sympathectomy refused further operation and, while still able to live a life of retirement, is incapacitated for work. Surgical treatment, either bilateral sympathectomy or resection of the bifurcation, is most successful when obliteration of the stenotic vessels has taken place gradually, because in such cases the compensatory collateral circulation has had time to develop. Obliteration resulting from ascending lesions may be either rapid or gradual; when it is rapid, the clinical picture resembles that of embolism and bilateral amputation becomes inevitable. Resection with sympathectomy is the only active treatment possible when the extension of the obstructive lesions has been gradual, but the results are often deceptive and the final outcome may be no better than that obtained by letting nature take its course.

Archives of Disease in Childhood, London

28:81-160 (April) 1953

Some Radiographic Manifestations of Early Scurvy. J. F. Brailsford.—p. 81.
Four Cases of Acute Acquired Haemolytic Anaemia in Childhood Treated with A.C.T.H. B. S. Rose and S. N. Nabarro.—p. 87.
*Two Cases of Congenital Mitral Stenosis Treated by Valvotomy. B. D. Bower, J. W. Gerrard, A. L. D'Abreu and C. G. Parsons.—p. 91.
Ectopic Ossification in Tuberculosis Meningitis. J. Lorber.—p. 98.
Idiopathic Hypoproteinaemic Oedema and Amino-Aciduria in an Infant. J. P. Bound and W. R. Hackett.—p. 104.
*Fatal Generalized Vaccinia with Failure of Antibody Production and Absence of Serum Gamma Globulin. S. E. Keidan, K. McCarthy and J. C. Haworth.—p. 110.
Congenital Toxoplasmosis in Newborn. E. G. Hall, J. D. Hay, P. D. Moss and M. M. P. Ryan.—p. 117.
Mandibulofacial Dysostosis in an African Infant. S. Wayburne.—p. 125.
Neonatal Diphtheria. M. Curtin.—p. 127.
Infantile Hypertrophic Pyloric Stenosis Recurring After Rammstedt's Operation. N. K. Macrae-Gibson and B. L. Coles.—p. 130.
Blood Glucose Changes in Newborn: 1. The Blood Glucose Pattern of Normal Infants in First 12 Hours of Life. R. D. G. Creery and T. J. Parkinson.—p. 134.
Comparative Study of Circulating Eosinophil Level in Babies. Part II: In Full Term Infants. J. M. Burrell.—p. 140.
Muscle Fibres in Children's Stools. J. L. Emery.—p. 143.
Retroperitoneal Teratoma in Infancy. D. Charles.—p. 147.
Encephalopathy Following Diphtheria-Pertussis Inoculation. J. M. Sutherland.—p. 149.
History of Infant Feeding: Part I. Primitive Peoples: Ancient Works: Renaissance Writers. I. G. Wickes.—p. 151.

Congenital Mitral Stenosis Treated by Valvulotomy.—Congenital mitral stenosis, without any other associated anomaly, is reported in a 9½-month-old boy and with coexistent patent ductus arteriosus in a 5½-year-old girl. Mitral valvulotomy was performed on both patients. The diagnosis was confirmed at operation in both, and also by necropsy in the boy, who died suddenly during feeding 36 hours after the intervention. A history of recurrent pulmonary infection and dyspnea in both patients and of congestive heart failure in the boy was suggestive. A classic presystolic murmur and accentuated slapping first sound confirmed the diagnosis, but these signs were variable so that the diagnosis seemed doubtful. No significant enlargement of the left auricle was revealed by roentgenologic examination. The electrocardiogram showed right ventricular preponderance, which is common at the age of the patients, but it also showed an abnormal P-wave in both cases. Cardiac catheterization was not of direct aid in the diagnosis, but it excluded septal defects and confirmed the presence of a silent ductus arteriosus in the girl besides showing extreme pulmonary hypertension in both patients. Angiocardiography was useful in both patients, by showing a large left atrium with stasis lasting for several seconds in the boy and by showing the ductus arteriosus and the direction of the blood flow in the girl. Selection of suitable cases for valvulotomy is important, since this surgical intervention should add many years to the life of a patient with a well-functioning left ventricle. The commoner condition of unequal division of the common atrioventricular canal may not be benefited. Digital exploration of the stenosed valve was possible in the older patient. An attempt at commissurotomy had to be made blindly by passing a valvulotome through a small incision in the auricular appendage of the younger patient. The latter method can never be so precise as that following digital exploration, but the case of the boy proved that it is feasible. Both these young hearts stood the surgical intervention extremely well.

Fatal Generalized Vaccinia.—A fatal case of generalized vaccinia is reported in an 11-week-old baby girl. Secondary lesions developed around the vulva and the anus and on the dorsum of the left hand two weeks after vaccination against smallpox, and widespread cutaneous lesions appeared on the right hand and the face until death occurred five weeks later. In the course of a normal vaccination, virus-neutralizing antibodies appear in the blood at about 12 to 14 days and continue to rise until about the 21st day, when they attain a steady level. Such neutralizing antibodies failed to develop in the serum of the authors' patient and electrophoretic analysis showed complete absence of gamma globulin. Treatment with penicillin and aureomycin was ineffective, as were transfusions of blood from recently vaccinated donors and intramuscular administration of 750 mg. of gamma globulin. It would seem that hyperimmune animal serums or convalescent serum from a recent case of smallpox should be given in large doses at frequent intervals. The possibility of replacement transfusions should be considered if serum is not available.

Archives des Maladies du Coeur, Paris

46:289-384 (April) 1953. **Partial Index**

Pulmonary Arterial Hypertension After Ligation of One or More Pulmonary Veins: Experimental Study. A. Van Bogaert, E. Fannes, L. Buytaert and others.—p. 289.
*Reformation of Mitral Stenosis After Commissurotomy. E. Donzelot, C. Dubost, R. Heim de Balsac and others.—p. 300.
Tetralogy of Fallot with Pulmonary Arterial Hypertension. L. Provenzale.—p. 310.
Variations of Residual Air in Course of Mitral Stenosis. L. Mathieu, J. P. Grilliat and P. Pillot.—p. 341.

Reformation of Mitral Stenosis After Commissurotomy.—The results of commissurotomy depend principally on the condition of the valves—whether they are still supple and only slightly deformed, or have become thickened, rigid, and incrusted, on the degree of inflammation in the tissues, on changes in the chordae tendineae or the papillary muscles, and on the precise location and extent of the newly created aperture. The position of the aperture in the commissural region, the more or less irregular edges produced by the tearing or severing of the valvular tissues, and latent or reactivated inflammatory processes localized in the valves all favor postoperative reformation of the stenosis. Factors relied on to prevent reformation are chiefly the greater amplitude of valvular movement produced by commissurotomy and the resulting increase in the volume and rapidity of the blood flow. Postoperative reclosure of a severely damaged mitral valve was proved at autopsy in the case of a 29-year-old woman subjected to commissurotomy for severe cardiac disability. The postoperative course was uneventful, and the patient's condition was at first greatly improved, but dyspnea recurred on the 15th day and was followed by severe pulmonary edema. Heart failure on the right became pronounced and in spite of treatment with heart stimulants, mercurial diuretics, and anticoagulants, the patient grew steadily worse until on the 28th postoperative day she died. Autopsy showed that the commissurotomy opening in the valve was solidly closed and capable of resisting pressure from a finger trying to re-enter the narrowed mitral orifice. Reclosure was brought about chiefly by organization of a clot superimposed upon inflammatory foci, some of which were old and sclerotic and some quite recent. The authors believe that while the mitral valves probably frequently reclose after commissurotomy, they usually are only partially stenosed, so that most patients derive real, though variable, benefit from the procedure.

Archivum Chirurgicum Neerlandicum, Arnhem

5:1-80 (No. 1) 1953. **Partial Index**

Surgical Treatment of Isolated Aortic Valve Stenosis. E. J. Moeys.—p. 27.
Importance of Pancreatico-Duodenectomy in Treatment of Tumors in Region of Head of Pancreas and Vater's Papilla. M. W. Van Weel.—p. 31.
New Ways of Controlling Postoperative Pain. L. A. Boeré.—p. 46.
*Renal Injuries. W. F. Suermondt and J. W. Ijdens.—p. 52.
Cardiospasm. W. F. Suermondt.—p. 59.
Observations on Resection in Treatment of Malignant Skeletal Tumours. M. J. Kingma.—p. 64.

Renal Injuries.—Follow-up investigations on 57 patients from 1 to 20 years after they had sustained retroperitoneal renal injuries that were treated conservatively revealed that the late disturbances in the damaged kidney were minimal. The authors feel that early surgical intervention is indicated only if the renal injury is accompanied by increasing pain and tenderness in the flank and by the clinical symptoms of severe hemorrhage, shock, anemia, and a drop in the blood pressure. All other retroperitoneal renal injuries should be treated conservatively. Intravenous urography should be carried out as soon as possible after the accident. Every patient who has sustained a renal injury should be followed up carefully so that suitable treatment can be given early enough in the rare cases in which serious complications arise later.

British Journal of Dermatology, London

65:157-194 (May) 1953

An Attempt at a Physiopathological Explanation of Seborrhoea and Acne Vulgaris: Therapeutic Results. R. Aron-Brunetière.—p. 157.
Werner's Syndrome. R. Reed, R. H. Seville and R. N. Tattersall.—p. 165.
Psychiatric Observations on Facial Dermatoses. I. Macalpine.—p. 177.

British Medical Journal, London

1:1007-1062 (May 9) 1953

Premenstrual Syndrome. R. Greene and K. Dalton.—p. 1007.
Premenstrual Tension Syndrome and Its Treatment. L. Rees.—p. 1014.
Bright's Disease: An Attempt at a Statistical Assessment of Classification Proposed by Ellis. J. B. Enticknap and C. L. Joiner.—p. 1016.
*Recanalization of Thrombosed Arteries Under Anticoagulant Therapy. H. P. Wright, M. M. Kubik and M. Hayden.—p. 1021.
Metabolic Changes Associated with Operation. I. W. MacPhee.—p. 1023.
Annular Pancreas. B. F. Swynnerton and N. C. Tanner.—p. 1028.
Sliding Hernias Through Oesophageal Hiatus. G. Rios-Solans.—p. 1029.
Osteoid Osteoma. E. H. Strach.—p. 1031.

Recanalization of Thrombosed Arteries.—Thrombosis of the femoral artery was produced experimentally in 14 rabbits. Eight of the rabbits received ethyl biscoumacetate daily by mouth, starting 24 hours after the thrombus was formed. The remaining six animals served as controls. The time required for recanalization in control animals and in animals treated with anticoagulants was recorded by arteriography. Recanalization occurred in the animals treated with anticoagulants in an average of three and a half weeks, while the arteries of the controls were still occluded after several months. The effect of anticoagulant treatment depends on the maintenance of a low prothrombin level. The increased rate of recanalization observed in the treated animals is possibly due to the normally continuous action of fibrinolysin, which is usually masked by the continued deposition of small quantities of fresh fibrin on the thrombus surface. In the presence of an anticoagulant fibrin deposition is prevented. The action of the anticoagulant therefore appears to be indirect. Schmid and Stockinger observed that bishydroxycoumarin (Dicumarol), and ethyl biscoumacetate to an even greater extent, significantly depressed the growth and dividing power of fibroblasts in tissue culture. This effect was present even in the low concentrations found in the blood during anticoagulant therapy. It is therefore possible that the organization of the thrombus is modified by these drugs, and this plays a leading part in recanalization following arterial thrombosis. The conclusion seems justified that adequate prolonged treatment with bishydroxycoumarin in general and with ethyl biscoumacetate in particular has a favorable influence on the reabsorption of arterial thrombi, provided that therapy is started soon after occlusion has occurred. Such treatment may result in reopening of the occluded vessel when the obstruction is due to thrombotic and not to arteriosclerotic changes.

Edinburgh Medical Journal

60:201-248 (May) 1953

Surgical Treatment of Pulmonary Tuberculosis. G. Cruickshank.—p. 201.
Child Deaths in Edinburgh, 1901-51. J. M. Mair and H. P. Tait.—p. 212.
*Haematoma of Rectus Abdominis Muscle in Association with Pregnancy. J. A. Chalmers.—p. 223.
*Intermittent Acute Porphyria. J. G. Macleod and I. W. B. Grant.—p. 232.

Hematoma of Rectus Abdominis Muscle in Pregnancy.—Hematoma of the rectus abdominis muscle occurs apart from pregnancy, but is found three times more frequently in women than in men. The anatomy of the rectus abdominis muscle plays a part in the causation of the condition. It is divided by ligamentous septa into four muscle bellies, which are enclosed in a strong sheath except at the lower end posteriorly, where the inferior epigastric artery lies relatively unsupported; it is at this level that the hematoma occurred in the most serious cases. The patients affected are usually multiparas, and there has frequently been a rapid succession of pregnancies. Pregnancy is usually well advanced, and hydramnios or some other cause of over-distention of the abdomen may be present. Obesity is sometimes a factor, and muscle tone is usually poor. There is frequently a history of coughing, and chronic bronchitis or asthma may be present. The patient complains of pain on one side of the abdomen that is usually initiated by severe coughing. Diagnosis is difficult. In Torpin's earlier series in many of the cases the condition was diagnosed as a concealed retroplacental hemorrhage, twisted ovarian cyst, ruptured uterus, or ectopic pregnancy. Treatment of the milder cases is usually conservative but pain and progressive hemorrhage may demand active intervention. Forty-five cases of hematoma of the rectus abdominis muscle have been reported in the literature, and four more cases are added. One very severe case was treated by evacuation of the clot from the rectus sheath and the other three were successfully treated by conservative means. There was no maternal mortality, but in the first severe case the fetus died in utero of anoxia. The condition is much commoner than is generally recognized. The minor cases respond well to rest in bed, particularly if the abdominal muscles are well supported and appropriate measures are taken in the treatment of the bronchitis. Surgical treatment should be undertaken early in severe cases or if there appears to be extension of the hematoma. Conservative treatment is more likely to be successful in cases where the upper rectus muscle with its complete sheath is concerned. Treatment of the pregnancy should be conservative, except where gross overstretching of the muscle is interfering with the management of the hematoma, and in such cases induction of labor or cesarean section may be indicated. Undue strain in labor should be avoided, and forceps delivery may be desirable.

Intermittent Acute Porphyria.—The authors report eight cases of intermittent acute porphyria observed in the Edinburgh district in recent years. Seven of the patients were women. The diagnostic difficulties are illustrated by the great diversity of the provisional diagnoses in these cases, e. g., abdominal and gynecological emergencies, nephritis, hematuria, uremia, psychoneurosis, motor neuron disease, and acute anterior poliomyelitis. Attention is drawn to the recurrent association of abdominal pain, constipation, apparent hysteria, peripheral polyneuropathy, and red urine in intermittent acute porphyria, which can be diagnosed by a simple chemical test. In a disease for which no specific treatment is available it is important to avoid drugs such as barbiturates and sulfonamides that may, as in several instances in this series, precipitate or aggravate the condition. Five patients died. The immediate prognosis of intermittent acute porphyria is bad in patients who develop peripheral polyneuropathy; of 5 such patients in this series 4 did not survive. The diagnosis, if not established clinically, cannot be made by the routine methods of autopsy, as the pathological changes both in the central nervous system and elsewhere in the body are indefinite. In the present series three of four patients showed a bluish discoloration of the kidneys at autopsy, but even this might have been disregarded if the diagnosis of intermittent acute porphyria had not been made during life. The condition can be recognized post mortem by inspection of the organs under ultraviolet light, which produces a pink or red fluorescence if porphyrins are present.

Internat. Arch. Allergy & Applied Immun., Basel

4:65-130 (No. 2) 1953. Partial Index

Solar Urticaria. G. Fidelsberger and W. Lindemayr.—p. 65.

Influence of ACTH and Cortisone on Experimental Antibody Production in Rabbits. S. Moeschlin, R. Báguena and J. Báguena.—p. 83.

*Antagonism Between Diabetes Mellitus and Allergic Diseases, Especially Bronchial Asthma. M. J. Gutmann.—p. 118.

Antagonism Between Diabetes Mellitus and Allergic Diseases.—Only 35 of 19,126 patients with diabetes mellitus mentioned in the literature had asthma. Gutmann found 5 diabetics among 2,000 patients with allergy. One patient had both asthma and diabetes, and in two patients asthma and diabetes alternated, so that, when the blood sugar level was above 150 mg. per 100 cc., attacks of asthma never occurred. Although among his 2,000 allergic patients there were only five with diabetes, there were 38 with a diabetic family history. He cites Rost to the effect that diabetic members of families with allergy were free from allergy and vice versa. In trying to explain the antagonism between diabetes and allergy, the author points out that, according to Kylin, fasting blood sugar levels in asthmatic patients are low, between 80 to 90 mg. per 100 cc. Low blood sugar levels were the most consistent findings in 92 patients with intrinsic asthma according to Christensen. Unger found that asthmatics who often have a low blood sugar level seem to be relatively immune to diabetes. Abramson demonstrated hyperinsulinism by six-hour glucose tolerance tests in a number of asthmatics. Derbes and Engelhardt observed temporary relief from asthma following the administration of dextrose. While placing special emphasis on the antagonism of diabetes and asthma, the author also considers other allergic disorders in their relationship to diabetes such as urticaria and Quincke's angioneurotic edema. Four of 12 patients with asthma treated with cortisone and corticotropin had glycosuria and hyperglycemia that made reduction of the doses or interruption of this treatment necessary. These four patients had diabetics in their families, but the remaining eight had no such history.

Journal of Endocrinology, London

9:127-250 (April) 1953. Partial Index

Characteristics of Dose-Response Line in Allen-Doisy Tests Obtained by Intravaginal Administration of Oestrone in Distilled Water and in 50% Aqueous Glycerol. J. D. Biggers.—p. 145.

Adrenocorticotrophin in Relation to Diabetogenic Activity of Growth Hormone Preparations. E. Reid.—p. 185.

On Morphology and Adrenaline-Nor-Adrenaline Content of Chromaffin Tissue. R. E. Coupland.—p. 194.

Further Studies on Sterilization of Female Albino Mice with Oestrogen. C. W. Emmens.—p. 204.

Mode of Action of Antithyroid Drugs: Results with Two In Vitro Tests. W. R. Pitney and T. R. Fraser.—p. 224.

Observations on Method of Measuring Adrenocorticotrophic Hormone in Plasma. C. H. Gray and D. M. V. Parrott.—p. 236.

Pettenkofer Reaction as Indication of Adrenocortical Activity. F. T. G. Prunty.—p. 244.

Journal of Physiology, London

120:1-256 (April) 1953. Partial Index

Hydroxytyramine and Adrenal Medulla. D. M. Shephed and G. B. West.—p. 15.

Electroretinogram of the Dog. H. B. Parry, K. Tansley and L. C. Thomson.—p. 28.

Role of Liver and Kidneys in Maintenance of Level of Free Choline in Plasma. J. Bligh.—p. 53.

Effect of Adrenaline and Noradrenaline on Liver Blood Flow. I. Grayson and D. H. Johnson.—p. 73.

Some Observations Upon Isolated Perfused Human Foetal Hearts. J. B. E. Baker.—p. 122.

Estimation of Antidiuretic, Vasopressor and Oxytocic Hormones in Pituitary Gland of Dogs and Puppies. S. E. Dicker and C. Tyler.—p. 141.

Histamine Release by Adrenaline and d-Tubocurarine in Human Subject. J. L. Mongar and R. F. Whelan.—p. 146.

'Visual Attention' and the α-Rhythm. E. G. Walsh.—p. 155.

Quantitative Study of Response to Acetylcholine and Histamine of Blood Vessels of Human Hand and Forearm. F. Duff, A. D. M. Greenfield, J. T. Shepherd and I. D. Thompson.—p. 160.

Experiments on Post-Contraction Hyperaemia of Skeletal Muscle. S. M. Hilton.—p. 230.

Vasodilator Activity in Extracts of Various Regions of Central Nervous System. G. W. Harris and P. Holton.—p. 254.

Lancet, London

1:911-958 (May 9) 1953

*Diagnosis of Acute Meningitis in Infancy. J. C. Haworth.—p. 911.

*Cortisone Treatment in Adrenogenital Syndrome. P. A. Bastenie, J. R. M. Franckson, M. Verbiest and others.—p. 915.

*Assessment of Portal Venous Hypertension by Catheterisation of Hepatic Vein. A. Paton, T. B. Reynolds and S. Sherlock.—p. 918.

Hereditary Spastic Paraplegia: Report of Family with Associated Extrapyramidal Signs. A. P. Dick and C. J. Stevenson.—p. 921.

Cortisone as an Adjunct to Surgery in Treatment of Keloids. P. Clarkson.—p. 923.

Keloid, a Hazard of Piercing for Ear-Rings. C. J. Cellan-Jones.—p. 926.

Chloramphenicol in Typhoid and Paratyphoid Fevers: New Lines of Treatment. A. H. El Ramli.—p. 927.

Chloramphenicol Levels in Serum After Rectal Administration. A. W. El Borolossy.—p. 928.

Diagnosis of Acute Meningitis in Infancy.—Although the prognosis in acute purulent meningitis in infancy has improved remarkably since the discovery and use of the sulfonamides and antibiotics, the fatality rate is still high. One of the factors causing the high mortality is delay in diagnosis. The classical clinical features, stiffness of the neck and spine and Kernig's and Brudzinski's signs, are often absent in the early stages, or may appear at a time when treatment is no longer effective. Increased tension of the anterior fontanelle is a sign of utmost importance, but this, too, may be absent, especially if the baby is dehydrated. Haworth examined the records of the last 50 infants under the age of 12 months who were admitted to Alder Hey Children's Hospital with acute purulent meningitis. The infection was meningococcal in 24 and pneumococcal in 5; in 4 it was caused by Haemophilus influenzae, and in 5 by Bacterium coli; in 12 no organisms were isolated. Most of the unidentified infections were presumed to be meningococcal, many having been treated before admission. The chief symptoms recorded were vomiting, irritability, anorexia, drowsiness, and convulsions. The physical signs were neck rigidity, tense or bulging fontanelle, positive Kernig's sign, and a squint or "vacant look" of the eyes. Thirteen of the 50 infants showed none of the "classic" meningeal signs. Seven of the 13 cases were fatal. The review of the 50 cases supports the view that in infants with meningitis, convulsions signify a grave prognosis. The author makes a plea for routine prophylactic anticonvulsant therapy in this disease. Diagnostic lumbar puncture should not await the development of typical meningeal signs.

Cortisone in Adrenogenital Syndrome.—Franckson and co-workers report observations on six patients with the adrenogenital syndrome before and after treatment with cortisone. The following clinical benefits were observed: decrease of hair growth in one case, regression of masculine physique in three cases, development of breast tissue in two cases, return to normal menses in two cases, and unexpected occurrence of normal menstruation in a case of pseudohermaphroditism. In one case skin pigmentation resembling that of Addison's disease regressed. Excretion of urinary 17-ketosteroids was much reduced in all six patients. Chromatography showed that this reduction affected all the adrenal fractions of the urinary 17-ketosteroids, especially those that were present in great excess.

Assessment of Portal Venous Hypertension by Catheterization of Hepatic Vein.—Paton and associates point out that Myers and Taylor described a method of estimating portal venous pressure by measuring the pressure in a catheter blocking a hepatic vein and by recording pressures from catheters placed simultaneously in the portal and hepatic veins. Paton and co-workers extended the technique of hepatic vein catheterization to study portal venous pressure in patients with liver disease. Fasting patients were given 3 grains (0.2 gm.) of sodium amobarbital (Amytal) 30 minutes before catheterization. Under fluoroscopic control a radio-opaque nylon catheter was passed via the antecubital vein into the hepatic vein. The catheter was then advanced to the periphery of the liver until it met resistance about 10 cm. beyond the mouth of the vein. This was called the "occluded" position. Pressures were then recorded by a strain gage, the zero level being taken at a point 5 cm. below the sternal angle with the patient supine. Blood samples were taken from the occluded position for estimation of unsaturated oxygen, and the catheter was then withdrawn under fluoroscopic control about 5 cm. to the "free" position, where further pressure measurements and blood samples were taken. If possible, the catheter was inserted into more than one hepatic vein radicle to obtain comparable pressure records. Catheterization of a hepatic vein can be carried out in any center equipped for cardiac catheterization. The pressure obtained with a catheter occluding a hepatic vein does not differ significantly from that obtained directly from a portal-vein radicle, unless there is extrahepatic portal venous obstruction. The mean occluded hepatic venous pressure in 24 patients without liver disease was 6.8 mm. Hg. In 11 patients with portal cirrhosis the mean pressure was 22.0 mm. Hg. Raised values were also obtained in two patients with subacute hepatitis and in four patients with congestive heart failure. Normal values were found in 3 patients with extrahepatic portal venous hypertension and in 12 patients with obstructive jaundice (9 extrahepatic and 3 intrahepatic). Theoretical objections to the method do not invalidate its use in the clinical assessment of portal hypertension.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

97:921-982 (April 11) 1953. Partial Index

*Modern Concepts of Pathogenesis and Course of Heine-Medin's Disease. J. D. Verlinde.—p. 929.
Orthopedic Treatment of Acute Anterior Poliomyelitis. C. Schaap. —p. 936.
Reactions to Physical Exertion (Stress) in Patients with Bronchial Asthma and Behavior of Eosinophil Leukocytes. L. Koster and C. J. Alers. —p. 940.

Modern Concepts of Poliomyelitis Disease.—Verlinde argues that poliomyelitis can no longer be regarded as an exclusive neurotropic virus disease. Studies carried out during and after World War II proved that the virus is present in the pharynx, the gastrointestinal tract and feces not only in the paralytic, but also in the nonparalytic and abortive forms of poliomyelitis, and even in persons who have had contact with poliomyelitis patients. The majority of the persons who have the disease show extraneural lesions, such as involvement of the myocardium. Myocarditis and myositis may be induced in monkeys by various types of poliomyelitis virus. Hematogenous dissemination has been observed in these animals during the incubation period. Paralysis occurs only following neural spread, which is usually secondary, that is, it originates in the muscle tissue. The bulbar form of poliomyelitis following tonsillectomy, however, is the result of primary neural spread from the port of entry, the pharynx. The occurrence of paralytic forms following inoculation or physical exertion is probably explained by the fact that the virus present in these patients, following hematogenous dissemination, readily invades the muscles weakened by trauma or exertion for secondary neural spread.

Presse Médicale, Paris

61:661-680 (May 9) 1953

*Infections Caused by Pyocyaneus Bacillus in Children. R. Clément and L. Millard.—p. 661.
*Icterogenous Hepatitis Associated with Neurological Syndromes. J. Sterne. —p. 663.
The Problem of Syphilitic Balanitis. F. Pagès and J.-L. Freyria.—p. 665.

Pseudomonas Aeruginosa Infections in Children.—Pseudomonas aeruginosa infections are becoming more frequent as a result of changes in microbial flora brought about by the use of antibiotics. Antibiotic suppression of ordinary bacteria enables Ps. aeruginosa, which is resistant to most antibiotics, to develop more readily and to acquire greater virulence than would otherwise be the case. Its presence should never be disregarded, because it may lead to septicemia, meningitis, and necrotic or hemorrhagic lesions in the tissues. Conditions favorable to its development are found in children, especially those weakened by digestive disturbances, dietary deficiencies, or prolonged infections. Experiments on rabbits have shown that syndromes similar to those found in children can be produced by varying the method of inoculation; intravenous injection produces fatal septicemia, subcutaneous administration leads to the formation of eschars, and ingestion causes greenish diarrhea with intestinal ulcerations and necrosis of the liver. Ps. aeruginosa infection in children may be either general or localized; untreated general infections are always fatal. Meningitis is the most severe and persistent localized infection and still carries a high death rate, although antibiotic treatment has produced some improvement. The part played by Ps. aeruginosa in infantile diarrhea is not always clear, but when the bacillus is found in the stools, energetic treatment with diet, rehydration, and combined antibiotics should be instituted at once. Severe necrosis accompanies localized manifestations of Ps. aeruginosa, and when such infections are superimposed on burns, wounds, or eczematous lesions, they delay healing and favor suppuration. Dissemination from local foci may also result in generalized infection. Treatment is difficult, because the bacillus is resistant to most antibiotics in varying degrees; good results, however, can be obtained by using appropriate combinations of antibiotics or antibiotics and the sulfonamides, to which 45% of the strains are sensitive. The antibiotic of choice at the present time seems to be polymyxin B, but it must be used with caution because it has a toxic effect on the nerves and the kidneys.

Icterogenous Hepatitis with Neurological Syndromes.—Direct proof of the presence of poliomyelitis virus in patients with infectious hepatitis and involvement of the peripheral nervous system was obtained for the first time in two of five cases reported by the author. The neurological complications appeared abruptly during convalescence from jaundice in three cases. In one case jaundice followed a surgical procedure in connection with neurological examination, and in the other infection by a neurotropic virus was complicated by jaundice. Recovery from the hepatitis, which was of the usual type, took place in all cases. Regression of the neurological condition was noted in four patients, two being left with minimal sequelae and two with pronounced sequelae. Three years' follow-up of the other patient, however, showed that she still has a neurological syndrome with progressive tendencies. This patient's illness began after a stay at a beach known to be a center of poliomyelitic infection; at the same time, a pet dog that the patient had with her at the beach presented a progressive ataxia and amblyopia. Neurological complications accompanying infectious hepatitis are being reported with increasing frequency and are usually attributed to neurotropic properties acquired by the virus or viruses responsible for the hepatitis. The similarity of some of these complications (meningeal and paralytic, especially) to those found in poliomyelitis suggests that in certain cases infectious hepatitis may be caused by the poliomyelitis virus. Various clinical findings support this theory, and a study is now being made.

Revista Médica de Chile, Santiago

81:67-118 (Feb.) 1953. Partial Index

Pyelonephritis and Arterial Hypertension: I. Actual Status of Problem. R. Campos.—p. 67.
*Pyelonephritis and Arterial Hypertension: III. General Clinical Study, Prognosis and Treatment. O. Avendaño, M. Plaza de los Reyes and R. Orozco.—p. 74.
*Comparative Toxic Action of Streptomycin and Dihydrostreptomycin on Acoustic Nerve: Late Deafness Caused by Dihydrostreptomycin. R. Velasco L.—p. 79.

Pyelonephritis and Arterial Hypertension.—In a group of 57 patients with arterial hypertension observed by the authors, there were 25 with chronic pyelonephritis. The classic symptoms of diffuse glomerulonephritis were observed in one-half of these patients. In the remainder, hypertension and either urinary infection or edema were present. Renal insufficiency was observed in 15 patients. With antibiotic treatment the blood pressure became normal in 10 of 18 cases, pyuria cleared in 8 of 9, the urine became sterile in 5 of 14, the Addis test became normal in 7 of 13 cases, and the renal function became normal in 10 of 15. The authors conclude that chronic pyelonephritis is a frequent cause of arterial hypertension. The disease advances in four progressive phases: (1) localized focal infection, (2) development of pyelocystitis and lesions of the urinary tract, (3) diffuse glomerulonephritis with reversible lesions, and (4) renal sclerosis with renal insufficiency. The treatment consists of administration of antibiotics and surgical correction of anatomic abnormalities of the urinary tract, if any, in the course of the first, second, or third phases of the disease. In the fourth phase, the treatment is symptomatic only.

Effect of Streptomycin and Dihydrostreptomycin on Acoustic Nerve.—Velasco made a comparative study of the effects of streptomycin and dihydrostreptomycin on the acoustic nerve. Streptomycin given in daily doses of 1 gm. up to a total dose of 100 gm. or more to a large number of patients previously seen did not produce hearing disorders. In some cases it produced vestibular disorders that cautioned the physician to stop the treatment. The subjects of this report are six young adults who were given dihydrostreptomycin for pulmonary tuberculosis or for prevention or control of infection. The drug was given in daily doses of 1 gm. up to a total dose that varied from 28 to 70 gm. in tuberculous patients and from 6 to 8 gm. for prevention or control of an infection. None of the patients had dizziness or vertigo. The vestibular apparatus remained normal in all patients throughout the treatment. Bilateral hearing loss with tinnitus appeared between one and one-half and two and one-half months after discontinuation of the treatment and progressed for six months. The loss of hearing varied from 50% to complete deafness, even in patients who had received only a total of 6 or 8 gm. of the drug. Hearing loss and deafness did not progress after six months, but both conditions were permanent. The author states that dihydrostreptomycin in daily doses of 1 gm. is more toxic for the acoustic nerve than streptomycin in the same daily dose. He concludes that dihydrostreptomycin should be used only in cases of tuberculosis that does not respond to other antibiotics.

Semaine des Hôpitaux de Paris

29:1499-1532 (May 6) 1953

Present Status of Gastroscopy Apparatus and Suggested Improvements to Facilitate Endoscopy. C. Debray and P. Hausset.—p. 1499.
*Surgical Treatment of Cranial Stenosis: New Technique for Treatment of Oxycephaly. G. Desbuquois, G. Guiot and N. Poloukhine.—p. 1503.
Value of Radio-iodine Techniques in Physiopathological Study of Goiter in the Young. M. Berger, P. Guinet and R. Moret.—p. 1507.

Surgical Treatment of Cranial Stenosis.—Intracranial pressure caused by cranial stenosis in a boy of 15 was effectively relieved by a new surgical technique consisting of the creation of movable "cranial ribs." Diagnosis was based on the oxycephalic appearance of the skull and signs of cranial hypertension, which had been constantly increasing since their onset one year earlier. General anesthesia was obtained by intubation with the patient in the dorsal decubitus position and a large trephine opening to permit decompression was made in the temporal region on each side. Four smaller parasagittal openings were then made in the skull bilaterally, each being connected with the large opening on the same side by a cut through the bone made with a Gigli saw. A crosswise cut parallel with the longitudinal sinus was then made to free each "rib" at the top, just enough bone being left to hold it in place, and an additional crosswise cut was placed half-way down each rib to provide further flexibility. The expansion of the skull accompanying the cerebral pulsations following this procedure closely resembled the expansion of the thorax during inspiration. The postoperative course was simple and the patient left the hospital in good condition. Recent follow-up showed that he is now well and free from headaches and ocular disturbances; his skull is more normal in shape; his stature has increased; and he is making progress at school.

Tunisie Médicale, Tunis

41:223-356 (March) 1953. Partial Index

Edematous Forms of Nutritional Dystrophy in Infants: First General Study of 22 Tunisian Cases. M. Caruana, B. Hamza and H. Ghileb. —p. 265.
Case of Pyopneumopericardium. H. Bonan and H. H. Cohen.—p. 295.
*Typhoid Fever Treated with Cortisone and Chloramphenicol. R. Dana, G. Borsoni, V. Corcos and Others.—p. 307.

Typhoid Treated with Cortisone and Chloramphenicol.—The most striking effect produced by combined treatment with chloramphenicol (Chloromycetin) and cortisone in uncomplicated typhoid is the rapid decline in the temperature, which usually falls from 40 C to less than 37 C in from 12 to 24 hours. The pulse rate diminishes as the temperature falls, and at the same time the stupor disappears. Splenomegaly regresses. Complications in this series of 13 patients comprised three cases of encephalitis and one of severe intestinal hemorrhage. Encephalitis was noted in one patient during a relapse that occurred 24 hours after administration of cortisone was discontinued; use of penicillin and streptomycin in addition to the chloramphenicol relieved the clinical signs of the condition in 48 hours. Chloramphenicol and cortisone therapy was discontinued when encephalitis appeared in the other two patients; the authors' usual combined penicillin and streptomycin treatment with whole blood transfusions was substituted and proved effective. An intestinal hemorrhage that had begun in one patient before any treatment was started continued in spite of transfusions after chloramphenicol and cortisone therapy was instituted. Replacement of chloramphenicol and cortisone with the authors' usual treatment, to which in this case oxytetracycline (Terramycin) was added, resulted in cure. Relapses of varying severity occurred in five patients, usually after a period of from three to five days, but ultimate recovery was complete in all cases. Cortisone offers real advantages when used as a supplement to chloramphenicol in the treatment of typhoid.

Ugeskrift for Laeger, Copenhagen

115:479-512 (March 26) 1953. Partial Index

*Epidermolysis Bullosa: Heredity, Prognosis and Incidence in Denmark. K. Bülow and A. Nørholm-Pedersen.—p. 479.
Respiratory Acidosis and Alkalosis. E. Henriksen.—p. 494.
Oxygen Therapy of Patients with Grave Pulmonary Emphysema and Fibrosis. E. Henriksen.—p. 496.

Epidermolysis Bullosa: Heredity, Prognosis, and Incidence in Denmark.—Bülow and Nørholm-Pedersen collected information on 27 families with 594 members, in 143 of whom epidermolysis bullosa or allied changes were established. There is no causal therapy. Four main forms are differentiated. 1. Epidermolysis bullosa simplex, with dominant inheritance, in most cases persists through life but tends to improve. It was found in 96 of 286 members of 10 families, who live mainly in two places in Denmark, Laesø and Vendsyssel. 2. Epidermolysis bullosa dystrophica differs morphologically from the simplex form and is often incapacitating and combined with other deformities. Inheritance is recessive, but milder dystrophic cases with mainly dominant inheritance are described. It was found in 31 of 200 members of 11 families. 3. Epidermolysis bullosa letalis was found in 9 cases of 67 members of 3 families; there were also two infants who died from congenital malformations. 4. Epidermolysis bullosa, temporary form, is of brief duration and has a good prognosis. It was found in 4 of 59 known members of three families.

115:513-552 (April 2) 1953. Partial Index

*Diabetic Nephropathy Illuminated by Renal Biopsy and Renal Function Tests. C. Brun, H. Gormsen, T. Hilden and others.—p. 513.
Succinylcholine Iodide in Electroshock Treatment. B. Ibsen and G. Paerregaard.—p. 531.
Differential Diagnosis in Physiotherapy. E. B. Hansen.—p. 532.

Diabetic Nephropathy Revealed by Renal Biopsy and Renal Function Tests.—Biopsy revealed diffuse glomerular changes in 6 out of 12 patients with diabetes mellitus, diffuse nodular changes in 4, and completely hyalinized glomeruli with remnants of noduli in 1. In one instance the renal tissue was normal, which invalidated the clinical diagnosis of diabetic nephropathy; the renal symptoms were later found to depend on cardiac insufficiency. In four cases without definite clinical signs of diabetic renal affection glomerular changes were demonstrated; they were diffuse in three cases and diffuse in the nodes in one case. Brun and his co-workers conclude that renal biopsy has a certain diagnostic value in diabetic nephropathy. Its value seems to be limited in differential diagnosis with regard to chronic pyelonephritis. The biopsies apparently support the theory that diabetic nephropathy starts as a diffuse hyalinization in the basal membranes of the glomerulus loops and that the nodular changes are a further development of the diffuse changes. Kidney function tests, which in themselves do not allow definite diagnostic conclusions as to the degree and nature of the diabetic nephropathy, suggest that glomeruli with marked changes due to diabetes in some cases have an essentially greater filtration ability than could be assumed from the histological picture.

Wiener medizinische Wochenschrift, Vienna

103:253-270 (April 4) 1953. Partial Index

Study on Influence of Polycarbonic Acids on Coagulation. S. Greif. —p. 254.
Operative Indications in Idiopathic Dilatation of Esophagus. R. F. X. Pellegrini.—p. 256.
*Herpes Zoster of Tongue and Palate and Its Neurological Complications. H. Stepan.—p. 258.

Herpes Zoster on Tongue and Palate.—The rare occurrence of herpes zoster on the left side of the tongue and on the palate is reported. There was pronounced impairment of taste in the two anterior thirds of the left half of the tongue, i. e., in the area of the lingual nerve, as well as in the posterior third of the tongue, i. e., in the area of the gustatory glossopharyngeal nerve. The patient, a 72-year-old woman, also had peripheral paresis of the facial nerve on the left side. One day before the development of the paresis of the facial nerve the patient had pain in the pinna that irradiated occipitally and towards the angle of the jaw. This pain may be considered as the prodromal manifestation of irritation in the area of the posteriorauricular nerve. This nerve arises from the intermedian nerve, the cells of which are situated in the geniculate ganglion. The most important route of conduction of the sense of taste is through the lingual nerve, the chorda tympani, and the facial nerve to the geniculate ganglion. Many of the tasting fibers are commutated in the geniculate ganglion, and that alone may explain the severe disturbance of gustation in the area of the lingual nerve. The impairment of taste in the area of the glossopharyngeal nerve associated with the spread of the inflammation to the sensory portion of this nerve may be explained by the fact that the ramus communicans, which arises from the geniculate ganglion of the facial nerve or closely posteriorly or even from the large superficial petrosal nerve, may be so strong that the large superficial petrosal nerve appears to be a branch of the facial nerve. The motor fibers of the nervus canalis pterygoidei extend from the facial nerve to the levator veli palatini muscle, the sensory fibers present a connection between the gasserian ganglion and the geniculate ganglion, and the parasympathetic and sympathetic fibers are passing in the palatine nerves to the palate, into the area where the herpes vesicles occurred. The paresis of the facial nerve may be easily explained by the pressure that the inflamed and swollen geniculate ganglion exerted on the nerves. It was the diseased geniculate ganglion exclusively that caused the neurological complications in this rare case.

Zentralbl. Arbeitsmed. u. Arbeitsschutz, Darmstadt

3:33-64 (March) 1953. Partial Index

Physician at the Building-Construction-Site; New Type of Industrial Physician. G. Schäfer.—p. 33.
How Can the Plant Physician Measure the Functional Capacity of the Body? E. A. Müller and K. Karrasch.—p. 37.
Fatal Accident in Course of Distillation of Oil of Turpentine. H. Anders. —p. 40.
*Symptomatic Pernicious Anemia in Chronic Poisoning with Chromium. H. Steim and L. Weissbecker.—p. 42.

Symptomatic Pernicious Anemia in Chromium Poisoning.—The occurrence of hyperchromic anemia with hemoglobin levels of 12 gm. per 100 cc. and erythrocyte counts of 2,500,000, leukopenia, reduced number of reticulocytes (0.2%), Hunter's glossitis, histamine-refractory gastric anacidity, and paresthesia in a workman is reported who had been employed for 25 years in a tannery. His work consisted in sorting of half-dry hides that had been pretreated with basic chromium sulfate. Liver function tests did not reveal any impairment of liver function; the serum bilirubin level was not increased. The sternal bone marrow showed typical megaloblasts. The patient had cachexia and islet-like surface defects in the oral cavity and the esophagus, which, in the presence of large amounts of chromium in the saliva and in the urine, completed the characteristic picture of chronic chromium poisoning. The classic symptoms of pernicious anemia prompted the author to give the patient vitamin B_{12} and/or pteroylglutamic (folic) acid orally or parenterally, but the patient did not respond to this treatment. He then was given continued blood transfusions. Six months after the last blood transfusion the blood counts had become normal. The ulcers in the mouth and in the esophagus were cicatrized and the amounts of chromium in the urine and in the saliva were considerably reduced, but the cachexia and the atrophy of the lingual papillae remained unchanged. There are two possible explanations for the failure of vitamin B_{12} therapy in this patient. The synthesis of the thymonucleic acid from *thymidine may* have been disturbed directly by the chromium, or vitamin B_{12} may have been inactivated by the chromium as a result of its complex affinity.

BOOK REVIEWS

Psychosomatic Research. By Roy R. Grinker, M.D., Director of Institute for Psychosomatic Research and Training, Michael Reese Hospital, Chicago. Cloth. $3.50. Pp. 208. W. W. Norton & Company, Inc., 101 Fifth Ave., New York 3, 1953.

This book is based on two presidential addresses made by the author before the American Psychosomatic Society and the Chicago Psychoanalytic Society. Dr. Grinker is a well-known authority in the field on which he writes. The book consists of an exposition of his ideas and reflections and gives an over-all view of the field of psychosomatic medicine. In addition, it "attempts to develop a conceptual outline for new programs of psychosomatic research which may be valuable to others." It is justly called "A challenging appraisal of current psychosomatic concepts by one of the most active leaders in this field." The book delineates historical and current concepts, evaluates theoretical formulations and operational procedures, and discusses emperical observations. The author points out that particular psychosomatic expression is not constantly related to a specific emotional constellation. He says (page 61), "I believe that the central focus should not be either on the nature of the somatic functions, which is the subject matter of physiology, or on the psychological processes, which are independently studied by psychologists, psychiatrists and psychoanalysts, but on the forces contributing to psychosomatic unity, its developmental differentiation, and its unhealthy disintegration." There are two chapters on psychosomatic differentiation, which point out the "need for a multidisciplinary attack using many techniques of measurement applied to neonatal organisms and their human and physical environments through the first years of development." There is speculation as to why psychosomatic disturbances are on the increase in our Western culture. A discussion of "integration and field theory" is not too easy for the average person to comprehend. The book is more appropriate for the investigator in psychosomatic medicine than for the practicing clinician.

An Atlas of Skull Roentgenograms. By Bernard S. Epstein, M.D., Associate Radiologist, Jewish Hospital of Brooklyn, Brooklyn, New York, and Leo M. Davidoff, M.D., Neurosurgeon to Mount Sinai Hospital, New York City. Cloth. $15. Pp. 415, with 603 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1953.

This atlas of skull roentgenograms also contains excellent, concise introductions to the different groups of diseases manifest on the plain skull roentgenogram. One of the best features is the excellent coverage of the normal skull and its variations. The usual pitfalls that trap the uninformed are carefully explained and illustrated. There is some repetition, but this assures proper emphasis. The book is divided into 10 chapters covering the normal skull (including infant, childhood, and adult skulls), anomalies and malformations, trauma, infections, brain tumors, gliomas, primary sarcomas, lipomas of the brain, craniopharyngiomas and pituitary adenomas, miscellaneous tumors, tumors of the vault of the skull, and non-neoplastic diseases of the skull. The one notable exception is Caffey's disease, which is mentioned by the authors but is not illustrated. The selection of material for illustration is good, but the quality of reproduction could be improved. There are several typographic errors, which do not seriously detract from the book. One illustration is in a poor position for easy comparison. In short, this is an excellent book for neurosurgeons and roentgenologists, particularly those beginning work in either field, and is of interest to any who see plain films of the skull.

Psychiatric Treatment: Proceedings of the Association, December 14 and 15, 1951, New York, N. Y. Research Publications, Association for Research in Nervous and Mental Disease, volume XXXI. Editorial Committee: S. Bernard Wortis, M.D., Chairman, Morris Herman, M.D., and Clarence C. Hare, M.D. Cloth. $9. Pp. 451, with 49 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Ave., Baltimore 2, 1953.

During the past two decades, psychiatric treatment has covered a wide range of procedures, extending from a psychological and social milieu to pharmacological, electrical, and neurosurgical methods. In this symposium on psychiatric treatment, a concerted effort has been made by the contributors to evaluate the effectiveness of various therapeutic modalities. Dealing with individual and group therapeutic procedures and with electrophysiological, pharmacological, and neurosurgical methods, the symposium presents some of the advantages, weaknesses, and omissions in current psychiatric therapy. In summary, the papers indicate that the therapist should be cautious in advancing claims for the exclusive effectiveness of any single treatment or for any single factor influencing treatment in psychiatric practice, for apparently about one-third of patients fail to respond to treatment, one-third get well while under treatment, and one-third are more or less influenced by treatment. This volume should serve to stimulate scientifically critical studies in an important field.

Diabetic Manual for the Doctor and Patient. By Elliott P. Joslin, M.D., Sc.D., Medical Director, George F. Baker Clinic at New England Deaconess Hospital, Boston. Ninth edition. Cloth. $3. Pp. 315, with 55 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1953.

This new edition of an old, standard primer was written and revised by an acknowledged authority on education of the diabetic patient. As in the past, its style is delightfully simple and direct. Dr. Joslin has an intuitive feeling for answering the questions that all patients ask: the result is an absorbing text and a gold mine of information, presented for the most part in language even a child can understand. There are sections on the nature of diabetes and its incidence; the history of major discoveries, including insulin; instructions about food, urine testing, exercise, hygiene, and the use of insulin; diabetic acidosis and hypoglycemic reactions; infections and vascular complications; and heredity, marriage, pregnancy, and children. Occasional question and answer sections and brief, illustrative case reports, photographs, and diagrams amplify the didactic portions and add interest. The size is convenient, the type clear, and the workmanship of fine quality. This manual, one of the oldest, is universally used, chiefly because of the talent and experience of its author.

School Health Problems. By Laurence B. Chenoweth, M.D., Director, Department of Hygiene and Student Health Service, University of Cincinnati, Cincinnati, and Theodore K. Selkirk, M.D., Assistant Professor of Clinical Pediatrics, University of Cincinnati College of Medicine. Fourth edition. Cloth. $4. Pp. 446, with 122 illustrations. Appleton-Century-Crofts, Inc., 35 W. 32nd St., New York 1, 1953.

This college textbook, by authors who have written extensively in the field of preventive medicine and public health, first appeared in 1937. The fourth edition is evidence of its acceptability. The type and page size have been enlarged, and the general format makes for much easier reading, which is an advantage in a textbook designed for students of education and for teachers. Much of the material has been rewritten, reorganized, and supplemented. Sections concerning nutrition, malnutrition, and various factors that influence growth have been completely reorganized and new material added. New chapters on teachers' observations of the school child, dental health, the teaching of health, and the teacher's health are

---

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

well handled and are given the prominence they deserve. References at the end of each chapter have been brought up-to-date, and those prior to 1940 have been retained only when they concern important source material. The footnote references are also complete.

This is a satisfactory book for teachers to use as a reference on the school health program and their role in it. It is also valuable for the undergraduate student of education to use, either as a textbook or as a supplement, in college courses dealing with school health activities.

Therapeutics in Internal Medicine. By eighty-four authorities. Edited by Franklin A. Kyser, M.D., F.A.C.P., *Assistant Professor of Medicine, Northwestern University Medical School, Chicago.* Contributors: M. David Allweiss, et al. Second edition. Cloth. $15. Pp. 830, with 3 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1953.

The second edition of this book, presented in the classical arrangement of chapters according to related internal disorders, provides complete coverage of methods of treatment for nonsurgical diseases. The information is up-to-date and includes generally accepted methods along with some individual preferences of the contributors. There are 12 new sections and 17 new contributors. Like most other symposiums on treatment, the book does not include clinical descriptions of diseases. Only such physiological, etiological, and pathological information as may be required for an understanding of the principles of therapy is presented. The contributors are teachers, investigators, and administrators representing all branches of medicine except the surgical specialties. The preference given to trade names and the use of abbreviations by some authors is disappointing: ACTH is used as a generic name in place of corticotropin; D.T.P. appears as a generic synonym for diphtheria and tetanus toxoids combined with pertussis vaccine; BAL is used in place of dimercaprol; and D.D.T. is used instead of chlorophenothane. This tends to detract from the value of the book to students. The statement on page 601 that "Each tablet of phenylbutazone contains 250 mg." is difficult to reconcile with the currently available tablet sizes of 100 and 200 mg. For the most part the statements on dosage are accurate and detailed. An appendix of useful diets and tables of recommended daily allowances follows a final chapter on symptomatic treatment. A general index at the end appears carefully prepared. The printing and binding are excellent, and the double column format makes for easy reading. On the whole, this book on treatment deserves a prominent place among similar works, and it will appeal primarily to physicians who prefer one restricted to internal diseases.

Recurrent Dislocation of Shoulder. By James A. Dickson, M.D., Chief, Department of Orthopedic Surgery, Cleveland Clinic and Cleveland Clinic Hospital, Cleveland, Alfred W. Humphries, M.D., and Harry W. O'Dell, M.D., Chief, Department of Orthopedic Surgery, Akron Clinic, Akron. Cloth. $4.50. Pp. 158, with 78 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1953.

The number and variety of techniques that have been proposed during the past two decades in treatment of recurrent dislocation of the shoulder indicate the complexity of the problem and the controversial nature of various approaches to treatment. This small monograph begins with a review of the phylogenesis and ontogenesis, including a detailed study of anatomy and dynamics of the shoulder. Pathology is reviewed in detail, although the significance of the opening anteriorly of the shoulder joint into the subscapularis bursa, creating a normal anatomic weakness, apparently was not considered important by these authors. More than 50 principles or variations in operative techniques by as many different authors are listed, and the essentials of the commoner operations are described and illustrated in detail. Some confusion may result when the relatively inexperienced surgeon tries to determine, from the operations described, which of the various procedures would be most suitable for his patient. Treatment of recurrent posterior dislocations is also described briefly.

Epidemics in Colonial America. By John Duffy. Cloth. $4.50. Pp. 274, with illustrations. Louisiana State University Press, Baton Rouge, 1953.

In his research, the author has referred to the original colonial accounts of epidemics; the bibliography of these old records is one of the most valuable parts of the book. He ranks malaria, dysentery, and respiratory diseases as the most destructive, from a social and economic viewpoint, of the plagues that visited the colonists. He believes that smallpox, yellow fever, and diphtheria have been overrated as hindrances to colonial development. There is evidence, however, supporting a difference of opinion on the latter statement; for example, in the chapter on smallpox the author says, "A recent medical history estimates that the introduction of smallpox into Mexico in 1519 wiped out three and one-half million Indians. What was true of South and Central America held good for North America as well." In the same chapter he says, "An epidemic in Annapolis, Maryland, during this same winter of 1756-1757 delayed the convening of the assembly for five months." With regard to diphtheria the author quotes as follows: "In the parish of Hampton-Falls the disease raged most violently. Twenty families buried all of their children. Twenty-seven persons were lost out of five families; and more than one-sixth of the inhabitants of that place died within 13 months." As to yellow fever, the author says that it was one of the deadliest and most terrifying of all the infections that ravaged the American coastal cities. It is well known that during some of the yellow fever epidemics thousands of persons fled to the country to escape infection. The author traces chronologically the periodic waves of infection that passed through the colonies. He tries to show the number of deaths and the length of the outbreak and its effect on social and economic life. These historical accounts of epidemics and the frequent quotations from old reports make the book seem slightly dull, although its historical value is obvious. The author, who was born in England, became an American citizen in 1939 and 10 years later received a grant-in-aid from the American Philosophical Society for research in colonial epidemics.

History of the Second World War, United Kingdom Medical Series. Editor-in-Chief: *Sir Arthur S. McNalty, K.C.B., M.D., F.R.C.P.* The Army Medical Services. Administration. Volume I. By F. A. E. Crew, F.R.S. Cloth. 50s. Pp. 530, with illustrations. Her Majesty's Stationery Office, P. O. Box 569, London, S.E.1, 1953.

Almost eight years have elapsed since World War II ended, and the first of a series of volumes on the medical history of the war has just appeared. This is indicative of the amount of study of official records, their correlation, and the writing required to prepare an official history. This volume is one of two that will present the administrative phases of the British army medical department history. Beginning in 1933, the military members of the Army Council reviewed the position of the army with regard to its readiness for war. The medical services were unprepared, both in men and in medical equipment, to provide medical care for a large army. In this volume and the succeeding volume, readers will be able to review the conferences and planning and the tremendous tasks of the army medical services in undertaking medical care of the British armies in all theatres of war. In September, 1939, when the British expeditionary force was dispatched to France, the organization of the medical services for war differed little in principle from that in effect in 1918. When it was realized that many changes in the field organization had to be made, the director general of the medical services appointed the Hartgill Committee to examine the organization of the field services and to make suggestions for improvements in the light of the recent experience. This committee met in October, 1941, and two months later issued its report. The committee felt that four cardinal defects were apparent: (1) field medical units were insufficiently mobile, (2) field ambulances did not have adequate means of communication, (3) casualties were not distributed directly to the appropriate units but passed through channels that caused congestion at medical units in the forward areas, and (4) casualties were not afforded the benefits of modern surgery, that is, surgeons were located too far to the rear of divisions and corps. The result was that the Army Council decided to reorganize the medical services. The task of bringing the new scheme into effect proved long and difficult. Many of the details of how the reorganization was brought about are reviewed in this volume. It was written by F. A. E. Crew under the general direction of the editor-in-chief, Arthur S. MacNalty. The many others who assisted are given due credit.

The Alaska Vagabond, Doctor Skookum: Memories of an Adventurous Life. By John Michael Hewitt, M.D. Cloth. $3 Pp. 284. Exposition Press, Inc., 386 Fourth Ave., New York 16, 1953.

The author of this book, as a young man, was practicing medicine in a small Illinois town when gold was discovered in the Klondike. He and several others formed a company, assembled supplies of food, clothing, and mining utensils, and a small boat and went to Alaska to try their luck in the gold fields. The book is an account of his varied experiences over many years in Nome, Juneau, and other Alaskan settlements. Life was rugged in the wilderness. There were many more persons than there were dwellings available, although anyone in the saloon business seemed able to find some kind of shack in which to sell liquor. The author apparently did not find much gold in Alaska, but he seems to have enjoyed the life and to have done well practicing medicine under the hardships of frontier life. He tells of one hearty man who had a strangulated hernia but refused operation until the incarcerated intestine became gangrenous. The author saved the man's life by resecting a small part of the intestine and bringing the ends out through an opening in the abdominal wall. Much later he operated on this man again, with the aid of a Murphy button, and thus made an end-to-end anastomosis of the intestine. The author had considerable experience in Alaska with bone and pulmonary tuberculosis. He recognized even then the adverse effects of too much sunshine in pulmonary tuberculosis. Some of his operations were performed without much fear of infection, as he believed that interior Alaska was not "friendly toward germs." Later the author spent a number of years as an acting assistant Army surgeon in Alaska. He was retired in 1931 with the rank of major and has since lived in Los Angeles and Hollywood. His account of those adventurous years in the northland has an aura of camaraderie, good fellowship, and kindness to others less fortunate than himself. This interesting book was an ambitious undertaking although probably very enjoyable, for a writer who is now about 86 years old.

Einführung in die chemische Physiologie. Von Professor Dr. Emil Lehnartz, Direktor des physiologisch-chemischen Instituts der Universität Münster i.W. Tenth edition. Cloth. 39.60 marks. Pp. 549, with 119 illustrations. Springer-Verlag, Reichpietschufer 20, Berlin W. 35 (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, 1952.

This book was prepared as an introductory textbook in biochemistry. It is primarily for students of medicine, but enough reference material is included to make it of value to practicing physicians. The popularity of the book is attested by the fact that it is in its 10th edition. There has been a lapse of 10 years since the ninth edition was published, and consequently the current edition has been thoroughly revised and rewritten. Extensive use has been made of recent American, English, and Scandinavian literature; however, some chapters, for example, that on the inorganic constituents, contain no references after 1941, and the chapter on nucleic acids has only one reference more recent than 1943.

The material is divided into five main parts. The first discusses chemical constituents of the body, including carbohydrates, fats, steroids, proteins, nucleic acids, pyrrole pigments, and inorganic substances. The physical chemistry basic to proper understanding of biochemistry constitutes the second part. In the third part the physiologically active substances of the body are discussed, including vitamins, hormones, and enzymes. The fourth part deals with digestion, absorption, and the intermediary metabolism of carbohydrates, fats, proteins, nucleic acids, and pyrrole pigments. The fifth part includes chapters on the liver, blood and lymph, kidney and urine, and skin and milk.

The book is well written and compares favorably with American textbooks of similar size and scope. There are 119 excellent illustrations. Hormones and vitamins are extensively discussed. The section dealing with physiologically active substances of the body is excellent. The chapter on epinephrine, however, fails to give credit to J. J. Abel for his discovery and isolation of epinephrine as a benzoyl derivative. The chapter on the liver, which has no counterpart in American textbooks, discusses the role of the liver in metabolism of carbohydrates, fats, proteins, and nucleic acid. There is no discussion on the detoxication mechanisms in biochemistry; this would be a worth-while addition in future editions. In all, this is an excellent book and can be recommended as an introduction to biochemistry.

Pigment Cell Growth: Proceedings of the Third Conference on the Biology of Normal and Atypical Pigment Cell Growth. Edited by Myron Gordon. Cloth. $7. Pp. 365, with illustrations. Academic Press Inc., 125 E. 23rd St., New York 10, 1953.

Anyone interested in the subject of pigment, whether physician, biologist, chemist, or physicist, will find this an excellent source book, for it contains papers and discussions read at a meeting "designed to offer to each specialist an opportunity to explore paths of inquiry other than his own—to describe, perhaps explain and certainly to discuss the nature of the pigment cell and its contained melanin." The subject matter deals with the embryologic, genetic, endocrinological, pathological, physiological, and enzymatic problems of melanogenesis, as well as methods of study and treatment of normal and abnormal pigment cell growth in man. The medical research student will, of course, find the entire volume of value; the clinician will appreciate particularly the papers on acanthosis nigricans and those dealing with different phases of melanoma, all written by authorities in the field. An unusual feature is a report of a postconference session for the adoption of uniform nomenclature, during which recommendations were made for definitions of melanoblast, melanocyte, macrophage, and melanophore. The book is well bound, the paper is excellent, and the illustrations are informative and clearly defined. The indexed table of contents preceding each chapter is helpful in locating specific information quickly.

Liver Injury. Edited by F. W. Hoffbauer, M.D., Associate Professor, Department of Medicine, University of Minnesota Hospitals, Minneapolis. Transactions of eleventh conference, April 30 and May 1, 1952, New York, New York. Cloth. $4. Pp. 265, with 96 illustrations. Josiah Macy, Jr. Foundation, 16 W. 46th St., New York 36, 1953.

This book, as its predecessors, is a verbatim report of a conference of 30 leading investigators in the field of liver disease. As in all Macy Foundation conferences, the discussion is centered around five or six informal papers. In this volume the following subjects are presented: infective hepatitis, George F. Mirick; enzyme activity in human liver, John Waterlow; morphology of the liver, M. M. Hans Elias; the mechanism of biliary excretion in mammals, Elizabeth H. Bagley and Allen L. Grafflin; and hepatic histochemistry, Sten Lagerstedt. Much of the material presented at the conference represents work in progress and is still unpublished. The discussion is informal, extensive, and, because of the character of the participants, highly informative. The volume is well illustrated with tables, graphs, and plates, and reads easily. Pertinent references are included. This is an extremely interesting and stimulating volume, which should be read by all those interested in liver disease. Although much of the material is hypothetical and is only of theoretical interest at present, it should prove of interest to anyone with an inquiring mind.

When You Marry. By Evelyn Millis Duvall, Ph.D., and Reuben Hill, Ph.D. With chapters in collaboration with Sylvanus M. Duvall, Ph.D. Revised edition. Cloth. $3.75. Pp. 466, with illustrations. Association Press, 291 Broadway, New York 7, 1953.

This is a textbook written for personal study or for use in colleges and community centers to educate those contemplating marriage or already married. There is a wealth of information for the physician, lawyer, minister, and marriage counsellor. Such knowledge may prevent many broken homes and divorces.

Modern Concepts of Leprosy. By Harry L. Arnold, Jr., M.D., F.A.C.P., Department of Dermatology, Straub Clinic, Honolulu, Hawaii. Publication number 145, American Lecture Series, monograph in American Lectures in Dermatology. Edited by Arthur C. Curtis, M.D., Chairman, Department of Dermatology and Syphilology, University of Michigan, Ann Arbor. Cloth. $3.75. Pp. 105, with 33 illustrations. Charles C Thomas, 301-327 E. Lawrence Avenue, Springfield, Illinois; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1953.

This booklet was written by a dermatologist from the dermatological viewpoint. It presents the subject of leprosy to clinicians who desire more than brief information incorporated in textbooks of medicine but do not need extensive details. After discussion of the historical background and etiology of leprosy, the author considers the basic epidemiology of the disease, concluding that the "open" case is "potentially dangerous, especially for children." Nomenclature employed is that adopted at the Havana Congress on Leprosy (1948), namely, lepromatous and tuberculoid types and, in addition, an indeterminate group that has resisted classification. Diagnosis is based on clinical suspicion and differentiation from other cutaneous lesions and is supported by finding of the etiological agent in the lesion or evidence of nerve damage that can be attributed only to leprosy. Considerable emphasis is placed on the clinical features, histological characteristics, bacteriological and immunologic tests, and the clinical course, which distinguishes the lepromatous from the tuberculoid type of the disease.

Although prior to 1941 chaulmoogra oil and its ethyl esters were widely used in the treatment of leprosy, these proved of relatively little value. The advent of sulfone therapy was a marked advance, although all cases do not respond satisfactorily, either clinically or bacteriologically, and, at times, relapses have occurred in apparently cured patients. In the past, strict isolation of leprous patients in Scandinavia and Hawaii has resulted in a steady decline of the disease. Until more satisfactory epidemiological evidence is provided "it seems unwise to abandon restrictions on the movements and associations of bacteriologically positive cases."

Throughout the text it is evident that the author thoroughly appreciates the social implications of leprosy, but he fails to mention the therapeutic value of nourishing diet and congenial environment. Each of the nine chapters has a number of selected references, almost all of which are duplicated in a comprehensive bibliography, which precedes a subject index. The little volume has a pleasing format and is attractively bound.

Toxicity of Industrial Organic Solvents (Revised in Consultation with Toxicology Committee). By Ethel Browning. Medical Research Council, Industrial Health Research Board, report no. 80. Second edition. Cloth. £1 15s. Pp. 411. Her Majesty's Stationery Office, P. O. Box 569, London, S.E.1, 1953.

The first edition of this book was published in 1937 as a compendium of information about the effects on man and animals of various solvents used in industry. The revised edition summarizes more recent information on previously reviewed solvents and includes data on newer solvents that have come into use since the first edition was prepared. This edition reviews 126 different solvents grouped into 10 chapters under the following categories: hydrocarbons, chlorinated hydrocarbons, alcohols, ethers, esters, ketones, glycols and their derivatives, amino and coal tar bases, and nitrogen and miscellaneous compounds. Discussions of individual solvents cover properties, uses, acute and chronic toxicity to man and animals, lethal and narcotic doses and concentrations by various routes of administration and exposure, symptoms, and effects on the blood and internal organs. There are also data on estimation of the solvent in the atmosphere and in blood and tissues, manufacture, metabolism, differential diagnosis of poisoning, and effect of the solvent on the organism when combined with other solvents. An extensive bibliography complete up to 1948 is presented at the end of each chapter. The design of the book is attractive, and the paper, binding, and printing are of good quality.

Annual Review of Physiology. Volume 15. Editor: Victor E. Hall. Associate editors: Jefferson M. Crismon and Arthur C. Giese. Cloth. $6. Pp. 558. Annual Reviews, Inc., Stanford, Calif.; H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C.1; Maruzen Company, Ltd., 6 Tori-Nichome, Nihonbashi, Tokyo, 1953.

This is another excellent volume of the series that began in 1939. A remarkable uniformity has been maintained, and the present volume even includes one of the authors represented in the first, namely, Frank C. Mann. There are no chapters on applied and industrial physiology, and the subject of anesthetics, included in the first volume, has since been surrendered to the pharmacologists. Similarly, the subject of physiological psychology has been omitted since the inauguration of an Annual Review of Psychology; it is replaced by one on higher functions of the nervous system. The scope of the volume is enlarged by a discussion of the physiology of vision; this chapter, together with one on thermal receptors, also represents the subject of special senses. Recent developments relating to cortisone and corticotropin add interest to a new chapter by Scharrer on the comparative physiology of invertebrate endocrines. An illustration of the rate at which scientific literature is accumulating is afforded by Krahl's collection (mentioned on page 32) of eight and one-half pages of bibliography on the metabolism of sea urchin eggs. The Annual Review of Physiology, with its decennial index volume, constitutes a priceless key to this literature.

Elsevier's Encyclopædia of Organic Chemistry. Founded by (the late) E. Josephy and F. Radt. Edited by F. Radt. Series III: Carboisocyclic Condensed Compounds. Volume 14, Supplement: Triterpenes. Co-edited by Dora Stern. Cloth. $40; $35 to series subscribers; $30 to set subscribers. Pp. 939S-1345S;50. Elsevier Press, Inc., 402 Lovett Blvd., Houston 6; 155 E. 82nd St., New York 28; 118 Spuistraat, Amsterdam C, Netherlands, 1952.

A relatively small amount of space was devoted to the triterpenes in volume 14 of the encyclopedia, but the recent increase in research on these compounds has necessitated a separate book to bring the data up-to-date. Thus, the literature in this supplement covers the period 1937 to 1946, and with regard to chemical structures the literature is reviewed up to 1952. The book covers derivatives of the pentacyclic terpenes of the α- and β-amyrin groups, lupane and heterolupane groups, the tetracyclic triterpenes, and triterpenes with an unknown number of atom rings.

Functional Disorders of the Foot: Diagnosis and Treatment. By Frank D. Dickson, M.D., F.A.C.S., Clinical Professor of Surgery, University of Kansas School of Medicine, Kansas City, and Rex L. Diveley, A.B., M.D., F.A.C.S., Assistant Professor Orthopedic Surgery, University of Kansas School of Medicine, Third edition. Cloth. $6.75. Pp. 345, with 205 illustrations. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1953.

The third edition of this book includes the important portions of previous editions and a section dealing with the rigid or spastic flat foot, which in many instances is secondary to a fusion or coalition between the os calcis and the astragalus, or the os calcis and the scaphoid bones of the foot. Thousands of patients have suffered throughout their lives because of this painful condition, and little was known about it until a careful study was made of prospective inductees in the Canadian army during World War II. This book is exceptionally practical and will be of value to every orthopedic surgeon and to physicians in general practice who are willing to take the time and the effort to try to help patients with painful feet.

The Anatomy of the Domestic Animals. By Septimus Sisson, S.B., V.S., D.V.Sc. Revised by James Daniels Grossman, G.Ph., D.V.M., Professor of Veterinary Anatomy in College of Veterinary Medicine, Ohio State University, Columbus. Fourth edition. Cloth. $15. Pp. 972, with 736 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1953.

The book is intended as a textbook for veterinary students and a reference for veterinarians. Equine, bovine, canine, and ovine organ systems are described in considerable detail, with emphasis on comparative anatomy. A short section is devoted to the anatomy of the chicken. The text has numerous illustrations, excellently reproduced and clearly labeled.

QUERIES AND MINOR NOTES

HUMIDITY IN THE HOME

To the Editor:—*Please discuss inexpensive methods of keeping the air in a house reasonably humid in winter (for prevention of the common cold). Does having plants and flowers in the home help? Why are plants removed from patients' rooms in hospitals?* M.D., *Pennsylvania.*

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—There is no inexpensive method for keeping the air in a house reasonably humid (30% relative humidity) during cold weather, nor is there any evidence that the maintenance of a high humidity will reduce the incidence of common colds. The amount of moisture that would have to be evaporated to obtain a relative humidity of 30% in a house heated to 70 F averages about 1 gal. per room per 24 hours when the outside temperature is 20 F. The use of double sashes or weather stripping at windows and doors will reduce this amount about one-half, and the use of double sashes also helps avoid condensation of moisture on windows under the above conditions. Obviously, the use of plants and flowers helps little in humidifying the air. In houses in which warm air heating is used, automatically controlled humidifiers integrated nto the heating system are generally the most satisfactory, but hey cost from $200 to $400. With steam or hot water heating, cabinet type humidifiers may be used, at a cost of from $100 to $500. The practice of removing plants and flowers from patients' rooms at night originated from the old, erroneous belief that they utilize oxygen that should be conserved for the patient. Today, plants or flowers are taken away to a cool place at night to preserve them. Unless a clean, cool place is available for storage, they keep better in the patient's room. Strong aromatic flowers should be removed to spare the patient constant olfactory stimulation.

Answer.—There is no simple, effective, and inexpensive method for providing added humidity in a house. Contrary to some recent reports, humidity levels during the heating season, except in houses with extremely cold or hot temperatures, are relatively unimportant. It is possibly true that a relative humidity of 70% in a house during the heating season is physiologically advantageous. Certainly, this is true of a 50% level; however, 25% saturation is not disastrous. The disadvantage of ill effects on household appurtenances offsets the physiological value of high humidities. In many houses a relative humidity higher than 35% may be detrimental to paint and plastering, and window panes may ice up to the point of unsightliness and the exclusion of sunshine. In steam-heated houses the slight cracking of release valves may supply abundant humidification. Devices sometimes installed in central hot air units often are short-lasting, flimsily constructed, and unsatisfactory. Water pans attached to radiators are effective in proportion to the amount of evaporation that occurs, but this procedure is not highly efficacious. In houses heated by stoves immediately within the living quarters, the time-honored kettle with boiling water provides satisfactory humidification. The best known, relatively inexpensive humidification device is the electrically powered small sprayer and distributor, of which there are many commercial types. These devices, which require only fairly frequent replenishment of water, are efficacious and generally durable. The simple practice of keeping open or repeatedly opening to a height of a few inches one or more windows increases humidity when the outside humidity is high. Plants and flowers in a household contribute to increased humidification only because evaporation continually takes place from plant surfaces and the top of the soil. A large-sized potted plant resting in a jar of water ordinarily will lead to evaporation of no more than about 1 gal. weekly. This is no great contribution to the humidification of the air of a house. The removal of plants and flowers every night from the room of a sick person is merely a habit carried over from the time when it was believed that flowers consumed oxygen and thus competed with the patient for the room's oxygen supply. Another reason for this practice is the recognition that the odors of flowers may become oppressive in a room that is likely to be closed up during the night. The justifiable reason for removing flowers from the sick room at night is to store them in a cool place to produce freshness for the following day.

SIGNS AND SYMPTOMS IN PULMONARY TUBERCULOSIS

To the Editor:—*The National Tuberculosis Association has designated degrees of pulmonary tuberculous disease as measured roentgenographically as follows: "Minimal—Slight lesions, without demonstrable cavitation, confined to a small area of one or both lungs, the total extent of which shall not exceed the equivalent of the volume of lung tissue which lies above the second chondrosternal junction and the spine of the fourth or body of the fifth thoracic vertebra on one side. Moderately advanced—One or both lungs involved, not to exceed in total extent, if slight dissemination, more than the volume of one lung, or if dense and confluent, more than one-third that amount, and total diameter of cavities, if present, not to exceed four cm. Far advanced—Any extension greater than moderately advanced" (Wampler, F. J.: Principles and Practice of Industrial Medicine, Baltimore, Williams & Wilkins Company, 1943, p. 379). I would like to know the different clinical signs and symptoms accompanying each of the three stages of the disease. This information will be used in connection with evaluation and rehabilitation of sick or disabled industrial workers.*

Jose S. Santillan, M.D., Manila, Philippine Islands.

Answer.—There is no specific set of clinical signs and symptoms for each stage of the disease. There has been a complete revision of the standards set forth by the American Trudeau Society in the 1950 edition of "Diagnostic Standards of the National Tuberculosis Association" (New York). The standards have not changed enough to make it impossible to answer the inquiry, but it must be emphasized that little can be proved "with requisite certainty" by physical findings. In determining severity of the disease, most weight must be given to roentgenographic evidence, which may be supported by the history, physical findings, and symptoms. Disillusionment with the clinical approach came with the improvement in and increase in use of roentgenograms, especially after World War I. Often, physical examination reveals little while at the same time roentgenograms show infiltrations of considerable extent, sometimes with cavities. On the other hand, many rales and signs suggestive of disease may be present and yet the roentgenogram shows little. It would not, however, be proper to allow these statements to stand without amplification, because the history and preliminary clinical examination are essential for the record, and they supplement the roentgenographic findings as nothing else can. It should be pointed out that careful physical examinations are costly and time consuming and should not be depended on in case finding surveys, nor should large roentgenograms be used for screening purposes. In industry, the physical examination is, of course, imperative and of much more value. With the foregoing qualifications in mind, the classical physical findings occurring in each of the three stages of disease will be discussed briefly.

Minimal.—Most minimal lesions produce no clinical signs or symptoms, especially during their early development. When the lesions become larger or more destructive in character,

---

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

humoral changes that are reflected in the blood cell counts and the erythrocyte sedimentation rate as well as an allergic skin reaction occur. When toxicity develops to a certain degree, several changes may occur. The reflex arc from lung to corresponding muscles causes muscle spasm (Pottenger's sign), which may be detected by careful palpation. This sign, although interesting, is generally unreliable in evaluating the amount and character of the underlying lesion, and few physicians are sufficiently experienced to use it. Percussion may or may not reveal changes in note, depending on the size of the lesion and its nearness to the surface. Breath sounds ranging from vesicular to bronchovesicular (rarely bronchial) may be heard but are unreliable as signs, since they may be altered in the absence of active disease. Auscultation may reveal a few crepitant and subcrepitant rales, but during much of the early development of the lesion, and even later, nothing at all may be heard. Whispered voice changes rarely occur with minimal lesions, since the changes that produce them are rarely present. The change in body temperature and pulse is even more erratic. There may be a 1 or 2 degree rise in temperature and a pulse rate as high as 90 beats per minute, but most of the time the early course is symptomless.

Moderately Advanced.—Moderately advanced lesions are more likely to give rise to detectable physical changes. All of the conditions mentioned above may occur, possibly over wider areas than with minimal lesions. Muscle spasm is more likely to be present. Scattered subapical consolidations may be detected on percussion, especially those near the surface, but deep infiltrates may be missed. The voice whisper may take on a more bronchial character as ulceration develops and as bronchi become dilated. Commonly, the body temperature rises 1 to 3 degrees, and the pulse rate may increase to 100 beats per minute, but there may be no change at all. Loss of appetite owing to toxicity may develop, with corresponding loss of weight. Pleurisy may or may not be present, depending on the nearness of the lesions to the surface of the lung.

Far Advanced.—In far advanced lesions, the whole gamut of changes described may occur. Commonly bronchial and sometimes amphoric breathing occurs, with occurrence of corresponding changes in breath sounds on whispered voice as cavities develop. Signs and symptoms accompanying earlier lesions are exaggerated in volume and more extensive in area. Again, they may be partially or entirely absent, even signs of deep cavities. In chronic disease, the signs and symptoms usually become abated, consolidations may be more evident, and the overlying muscles may show atrophy.

The signs and symptoms of the many variations and complications of the disease may be found in textbooks. Needless to say, the subject under examination should be charted as a surveyor would chart new land; such things as deviation of the trachea, apex beat of the heart, and scoliosis should be recorded. It should be emphasized again that signs and symptoms are sometimes deceiving and are only confirmatory when present. They may be misleading as to the exact degree of disease present, and they may be wholly absent. They must be elicited in the light of experience and always interpreted with wisdom and good judgment.

TREATMENT OF VENEREAL WARTS

To the Editor:—*Please suggest treatment for venereal warts; use of podophyllum resin in a 25% oil solution and various antibiotics has proved ineffective.* *M.D., Rhode Island.*

Answer.—If podophyllum resin was unsuccessful in the treatment of condyloma acuminata, electrodesiccation of the lesions following injection of a local anesthetic may be advisable. This should be followed by the use of a dusting powder, such as thymol iodide, and the patient should return at intervals not to exceed two weeks, so that young lesions may be destroyed before they act as a source of reinfection. Sitz baths of potassium permanganate, in a 1:15,000 dilution, may be advisable if many of the warts are removed at one sitting. The sexual partner, a possible source of reinfection, should also be examined and treated if found to have condyloma acuminata.

GENERALIZED PRURITUS

To the Editor:—*I have been treating a patient with rheumatoid arthritis with cortisone acetate since November, 1952. She is presently receiving a cortisone maintenance dose of 50 mg. three times weekly. About mid-January, generalized, severe pruritus developed, which has not responded to the usual applications. Administration of ephedrine by mouth and epinephrine intramuscularly failed to relieve the pruritus. The patient has been seen by an expert skin consultant, who feels that the pruritus may be caused by protein substances in the cortisone. I would appreciate your opinion and recommendations.* *M.D., New York.*

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Generalized pruritus is not an expected complication of cortisone therapy. The pruritus in this case cannot possibly have occurred on the basis of allergy to protein products in cortisone acetate, because this product contains no protein. Diabetes mellitus of course can be aggravated by cortisone therapy, and generalized pruritus may come about indirectly in this way. Other internal causes of generalized pruritus must also be considered. These include, especially, liver or biliary tract disease, uremia, leukemias or lymphomas, and internal malignant disease. Intestinal parasites, focal infection, arteriosclerosis, and neurological or psychic causes for generalized pruritus have also been claimed. Among external causes of generalized pruritus without appreciable dermatitis, asteatosis is commonest and is the basis of so-called winter itch (Rothman, S., and Shapiro, A. L.: Itching [Pruritus] Chapter 31 in MacBryde, C. M.: Signs and Symptoms, ed. 2, Philadelphia, J. B. Lippincott Company, 1952, p. 713).

Answer.—Cortisone is a pure crystalline material, not a protein, and there are no "protein products" in either cortisone or its vehicles. Presumably, in this instance the cortisone is being given by injection. Cortisone for administration by this route is supplied as a suspension in sodium chloride solution, with a small, unspecified amount of a suspending agent and 1.5% benzyl alcohol. Occurrence of sensitivity to the suspending agents is possible but, insofar as this consultant is aware, has not been reported in the literature or substantiated in any unreported case. The reaction noted in this patient is most likely due to a factor or factors other than the cortisone or its vehicles. Additional consideration of physical, environmental, and emotional factors may be needed to clarify more precisely the basis for this patient's condition.

HYPERTENSION DURING TRANSURETHRAL RESECTION

To the Editor:—*What causes hypertension during transurethral resection of the prostate? In a recent case, alarming hypertension, followed by pulmonary edema, developed near the end of the procedure. Fortunately, recovery was effected by administration of digitalis and oxygen under pressure and the use of other emergency measures for several hours. Blood drawn after the complication occurred showed pronounced hemolysis, but a recheck to determine the blood group for cross matching did not indicate incompatibility. Distilled water was used as the irrigant during the operation.* *M.D., Wisconsin.*

Answer.—The occurrence of hypertension during transurethral resection of the prostate has two possible causes, hemolysis or extravasation into the paraprostatic tissue. Judging from the description, the hypertension in this case evidently was caused by hemolysis. The exact mechanism by which hypertension is produced in such cases is unknown. Oliguria does not always occur with hemolysis, but, when it does occur, it is usually fatal. Hemolysis usually can be prevented by the use of an isotonic sodium chloride solution for distending the bladder during resection.

SIX STILLBIRTHS

To the Editor:—*A woman, 40 years of age, who is Rh negative and who had a negative blood Wassermann test result is four months pregnant. Her husband is Rh positive. Her first child, born 16 years ago, is normal. Six other pregnancies, ranging at from 4 to 8 months of gestation, have resulted in abortions or stillbirths. 1. Whether the husband is homozygous or heterozygous Rh positive, is it possible for this woman to deliver a normal baby? 2. Is corticotropin (ACTH), cortisone, or any other substance of value in blocking antibody formation? 3. How often is an erythroblastotic infant born to Rh-positive parents?* *M.D., New York.*

Answer.—Not enough facts are given to permit a definitive answer. No mention is made of tests on the expectant mother's serum for Rh antibodies or of autopsy findings confirming the diagnosis of erythroblastosis fetalis as the cause of the stillbirths. If tests for Rh antibodies on the expectant mother's serum give negative results, some other explanation for the stillbirths should be sought. If all were due to erythroblastosis, the mother's serum would be expected to show Rh antibodies in very high titer. The correlation between Rh antibody titer and the frequency of stillbirths has been discussed by Wiener and co-workers (*Am. J. Obst. & Gynec.* **63**:6 [Jan.] 1952). Assuming that the stillbirths were due to erythroblastosis and that the mother's serum contains Rh antibodies in high titer, the questions may be answered as follows: 1. Only if the fetus is Rh negative is there any chance that the baby will be normal. This would be possible only if the husband is heterozygous. The blood types of the husband's parents should be determined, if possible, and if one is found Rh negative, this would prove the husband to be heterozygous. If the six stillborn fetuses were erythroblastotic presumably they were all Rh positive, and the chance of having six Rh-positive pregnancies in succession if the husband is heterozygous is only 1 in 32. Therefore, he probably is homozygous. Further light could be cast on the question by Rh subtyping, since persons of type Rh_1Rh_2 or type Rh_1Rh_1, for example, are presumably homozygous. If the husband is homozygous, every fetus would be expected to be Rh positive, and the occurrence of another stillbirth is highly probable. 2. The use of corticotropin or cortisone has not been shown of value in preventing the formation of Rh blocking antibodies. Certain investigators have claimed that the use of these hormones antenatally on highly sensitized Rh-negative pregnant women makes possible the birth of viable erythroblastotic infants, who can then be treated by exchange transfusion. The evidence offered in support of this contention is flimsy, and this problem requires further investigation. (For a discussion of the question, the following sources may be consulted: Queries and Minor Notes, *J. A. M. A.* **149**:1515 [Aug. 16] 1952; Queries and Minor Notes, ibid. **151**:697 [Feb. 21] 1953; Hunter, O. B., and Ross, J. B.: *South. M. J.* **45**:732 [Aug.] 1952.) 3. Erythroblastotic babies can be born to Rh-positive mothers. Such instances of erythroblastosis are generally caused by sensitization to the A or B agglutinogen, e. g., in cases in which the mother belongs to group O and the baby to group A or B. The resulting syndrome, which has been designated icterus precox, is generally much milder than erythroblastosis due to Rh sensitization, and spontaneous recovery is the rule. In fact, many of these cases are misdiagnosed as physiological icterus, although a few are severe and clinically indistinguishable from typical erythroblastosis caused by Rh sensitization. Occasionally, erythroblastosis occurs when an Rh-positive mother belongs to one Rh-Hr type and the baby to a different Rh-Hr type, owing to sensitization to one of the Rh-Hr factors other than Rh_0. In rare cases, isosensitization of the mother to unrelated blood factors, such as Kell and S, can cause erythroblastosis.

DETERMINATION OF SEX

To the Editor:—*I would appreciate information concerning the intrauterine determination of sex in the last trimester of pregnancy.* *Samuel E. Dakil, M.D., McAlester, Okla.*

Answer.—There is no dependable method of determining the sex of a child in utero at any stage of pregnancy.

REPAIR OF CYSTOCELE AND RECTOCELE

To the Editor:—*If a patient has a cystocele and a rectocele repaired and suspension of the uterus, should she have bilateral tubal ligation to prevent further pregnancy?*

Walter L. Cawood, M.D., Harlan, Ky.

Answer.—In general, it is desirable to defer such operations until after the childbearing age, but this is not always possible. A simple anterior colporrhaphy or a modified Fothergill procedure of the bladder advancement type for the cystocele is associated with little or no hazard to subsequent pregnancy, but amputation of the cervix is strongly contraindicated, because it is apt to cause miscarriage or, if the pregnancy goes to term, serious dystocia. A properly performed suspension, often combined with plication of the uterosacral ligaments, would not, of course, interfere with subsequent pregnancy. If the cystocele and rectocele are both large and associated with pronounced or complete prolapse of the uterus, many gynecologists will select vaginal hysterectomy combined with correction of the cystocele and rectocele. There are individual variations in both indications and preferred procedures, and it is obvious that in some patients religious considerations must be respected.

DIABETES INSIPIDUS

To the Editor:—*A businessman, aged 60, had a respiratory tract infection in January, and in February he contracted the "flu." After a week, he had urgency and frequency of urination and passed 4 to 5 liters of pale urine per 24 hours, which had a specific gravity of 1.000 to 1.005. In addition, he had a 7 lb. (3.2 kg.) weight loss, anorexia, and weakness. He has unilateral exophthalmos due to an old eye injury, slight blurring of the left disk, suppressed breath sounds over the lower left side of the chest posteriorly, and a blood pressure difference in the two arms, known to be present for many years, 120/80 in the left arm and 160/80 in the right arm. Roentgenograms show an asymmetrical sella turcica measuring 22 mm. in length and 14 mm. in depth. Roentgenograms of the chest show an extensive soft density involving the entire left lower lobe, which is characteristic of pneumonia. The visual fields are normal. Laboratory studies showed a normal blood cell count, erythrocyte sedimentation rate, blood sugar, cholesterol, and sodium levels, slightly lowered blood potassium and chloride levels, and a transient elevation of the nonprotein nitrogen level. The result of a Kahn test was negative, and an electrocardiogram was normal. Beta-hypophamine (Pitressin), 0.5 cc., caused nausea as did beta-hypophamine tannate, 0.5 cc. Does a pituitary adenoma cause diabetes insipidus, and is diabetes inspidus likely to appear for the first time at the age of 60? Should x-ray therapy be instituted?*

Harry Parks, M.D., Atlanta, Ga.

Answer.—This interesting case presents problems that need further investigation. The sella turcica is certainly large, and this may be due to a tumor. Diabetes inspidus can be caused by a pituitary adenoma. Diabetes inspidus may appear at any period from infancy to old age. The disease occurred for the first time at age 60 in one of this consultant's patients, who is now 84. Diabetes insipidus may occur following almost any sort of infection, including influenza and certain virus infections. There seems to be no reason why it could not follow virus pneumonia. X-ray therapy does not seem indicated at present. Further study should be made to determine whether a brain tumor is present. The ideal treatment of diabetes insipidus is the removal of the cause when possible. It would be desirable to have a neurosurgeon examine this patient to determine whether the patient has a pituitary tumor that may be removed. X-ray therapy to the pituitary and hypothalamic regions may be of value in relieving the symptoms of this disease, if the cause is a tumor that is radiosensitive and if the changes in the supraoptic hypophysial tract are not beyond repair. This patient has other complaints that deserve further study. The patient complained of urgency and frequency of urination. Diabetes insipidus usually does not cause urgency, although frequency is the rule. Since this patient has a pulmonary infection, it would be well to rule out a genitourinary tract infection or other genitourinary abnormality by means of pyelograms and prostatic examination. A transient elevation of the nonprotein nitrogen level is rare in diabetes insipidus. This finding may indicate genitourinary complications. Apparently the roentgenogram of the chest is characteristic of pneumonia in the left lower lobe; however, if this process does not clear properly, sarcoid, which also may cause diabetes insipidus, should be considered. Other details appear in the monograph on "Diabetes Insipidus" by Blotner (New York, Oxford University Press, 1951).

THYROID ADENOMA

To the Editor:—*A patient has a rounded mass in his neck about 1 in. in diameter in the region of the thyroid. This mass grew slowly over a three year period. The mass was removed intact, and, on pathological study, was diagnosed as a benign thyroid adenoma. In a case such as this one, should the complete lobe of the thyroid be removed, or should the mass alone be removed, since it had no appearance of malignancy?* *M.D., Kentucky.*

Answer.—The reason for removing solitary tumors of the thyroid is not so much that they may become malignant as that they may be malignant at the time of removal. For this reason, it is essential to remove the tumor in its entirety with a surrounding zone of normal thyroid tissue. Papillary carcinomas, which are the commonest carcinomas of the thyroid, infiltrate the surrounding tissue for some distance, and, as a general rule, a total lobectomy on the affected side is the best treatment for solitary nodules of the thyroid. If the nodules are small and are localized to the isthmus or an upper or lower pole, wide resection, with removal of a great deal of surrounding tissue, constitutes an adequate operation.

HYPOTENSION IN CARDIAC INFARCTION

To the Editor:—*Please discuss the treatment of the hypotensive or shock state in acute myocardial infarction in connection with the intravenous use of fluids and the use of pressor drugs.* *M.D., West Virginia.*

Answer.—Whether to treat actively the hypotensive or shock state associated with myocardial infarction is one of the most difficult decisions to make. In the usual shock state following surgery or injury, a myocardium that is normal or relatively so is being dealt with. Following myocardial infarction the physician is dealing with a myocardium that has been seriously injured and is confronted with a situation in which treatment of the shock state may place a burden on the myocardium with which it is unable to cope. The indication for intravenous transfusion is the occurrence of critical hypotension, which is a relative term. A fall in blood pressure from 200/120 to 100/60 may constitute a more critical situation than a fall from 130/80 to 80/50. The judgment of whether "critical hypotension" is present rests to some extent with the attending physician. The added presence of faintness, sweating, and pallid cyanosis is further indication of the shock state. An added burden is placed on the physician, owing to the fact that so many patients who appear to be in critical hypotension suddenly begin to recover spontaneously. Since the objective of treatment is to raise the blood pressure, the use of whole blood or plasma is the method of choice. Administration of 250 to 500 ml. may be necessary, but if a fair response is obtained with a lesser amount it is wise to interrupt the transfusion. The rate of administration is important. There is a tendency to keep the rate of flow at a very low level to avoid overloading the laboring myocardium; however, if the rate is too slow there will be no pressure rise and the purpose is defeated. A flow of at least 2 ml. per minute seems necessary, and 4.5 ml. per minute is not rare. It must be remembered that when transfusion is decided on, the situation is as bad as it can get, and hazards are accepted that usually would not be considered. Arterial transfusion in this situation has been studied. This maneuver requires special equipment and expert technique. The transfusion must be done under a pressure that exceeds arterial pressure by no more than 10 mm. Hg, and the transfusion pressure must be constantly adjusted to the arterial pressure. In the experimental animal made hypotensive by bleeding, intra-arterial transfusion shows the infused fluid to permeate immediately the renal, coronary, and cerebral vessels. Theoretically this would constitute a great advantage, but in actual practice in myocardial infarction the mortality with its use is exceedingly high. Of course, persons with myocardial infarction who are subjected to this procedure are all desperately ill. The results following intravenous transfusion are not good, but persons in whom the procedure is used are also desperately ill. The use of pressor drugs is not encouraged. They are used, as a rule, only as a last resort and have been found generally ineffective. At best, the result is transient.

PENICILLIN FOR PHARYNGITIS

To the Editor:—*What is the penicillin serum concentration considered sufficient to "cure" a streptococcic pharyngitis?* *M.D., Massachusetts.*

Answer.—Bicillin (dibenzylethylenediamine dipencillin G) and Eskacillin (crystalline potassium penicillin G with added buffer) are both highly effective in the treatment of pharyngitis due to the beta hemolytic Streptococcus. The essential difference between these two agents lies in their speed of absorption and excretion. Bicillin is absorbed and excreted slowly and produces, therefore, prolonged but relatively low, although effective, blood levels. Eskacillin, on the other hand, yields higher levels that are sustained for only a short period. The concentration of penicillin in the serum considered sufficient to "cure" a streptococcic pharyngitis must be evaluated in terms of the susceptibility of these organisms in the test tube. Almost all strains of the beta hemolytic Streptococcus are inhibited by 0.015 to 0.03 unit of penicillin per milliliter. Concentrations in the blood of from 0.1 to 0.15 unit should be adequate. Such concentrations can easily be produced by the administration of crystalline penicillin G by mouth. There is good evidence that therapeutic blood levels need not be present constantly to cure streptococcic pharyngitis. The administration of 150,000 units of buffered crystalline penicillin G orally three times a day or 250,000 units by mouth every 12 hours will cure streptococcic pharyngitis rapidly and, if given for seven days, will completely prevent the development of suppurative complications (Weinstein, L., and Perrin, T. S.: *J. Pediat.* 37:844, 1950. Weinstein, L., and Daikos, G.: *Am. Pract. & Digest Treat.* 2:60, 1951).

PURPURA AND PREGNANCY

To the Editor:—*A 29-year-old white married woman had thrombocytopenic purpura at age 22, which lasted for two years and was finally cured by splenectomy at age 24. There has been no purpura since the splenectomy. The patient is one month pregnant. What are the chances of purpura developing during pregnancy or puerperium, and would its effect likely be of a serious nature? What are the chances of purpura developing in the baby? What special precautions should be taken.* *M.D., Canada.*

Answer.—Since the patient has been free from purpura for five years, the chance of a relapse occurring during pregnancy is small. Pregnancy does not appear to be a cause of reappearance of thrombocytopenic purpura following splenectomy. Under these circumstances, one would not expect purpura to develop in the child. Purpura in pregnancy would be serious (over 50% mortality when splenectomy is not performed). There is a possibility of the occurrence of purpura in some babies if the mothers have thrombocytopenic purpura. In the absence of a known case of thrombocytopenic purpura, little can be done to prevent its reappearance. In nonpregnant women corticotropin (ACTH) or cortisone has been used with good results, and administration of calcium lactate and vitamin E (200 mg. daily) has been followed by a remission in some patients.

ELEVATED BLOOD UREA CONTENT

To the Editor:—*Of what significance is the urea content of the blood in the diagnosis of leptospirosis?*

Lynn W. Whelchel, M.D., Miami, Fla.

Answer.—An elevated urea content of the blood in a patient with clinical manifestations of hepatitis, meningitis, or an obscure febrile disorder should suggest the possibility of leptospiral infection, especially if accompanied by leukocytosis and conjunctivitis. It is a nonspecific condition, however, and the diagnosis can be established only by bacteriological or serologic evidence. Occasionally, a patient may have manifestations predominantly of renal involvement and a clinical condition similar to that of acute glomerulonephritis. Elevation of the blood urea concentration may occur as the result of either the nephritis, which is a part of the disease, or extrarenal factors. The renal lesion in fatal cases usually consists of considerable damage to the proximal tubules, with varying degrees of damage to the glomeruli. This may be manifested clinically by albuminuria, hematuria, cylindruria as well as azotemia, with or without edema and usually without hypertension. There may be oliguria, which in severe cases may progress to complete anuria. Extrarenal urea retention may occur as the result of shock in overwhelming infections, marked dehydration accompanying fever or vomiting, or gastrointestinal hemorrhage, which rarely is a complication of this disease. The blood urea concentration is also of prognostic value, most reported deaths attributable to this disease having occurred in patients showing severe renal impairment. A greatly elevated or rising blood urea concentration, with severe or progressing oliguria or anuria, connotes a grave prognostic sign and emphasizes the necessity of appropriate and adequate therapy directed toward prevention of complete renal shutdown and death.

INDICATIONS FOR MASTOIDECTOMY

To the Editor:—*Could you state briefly the present day indications for mastoidectomy?* *M.D., Nebraska.*

Answer.—Modern antibiotic therapy and chemotherapy, in adequate dosage, have proved extraordinarily effective in acute suppurative otitis media. As a result, only rarely does persistent acute infection in the middle ear and mastoid require simple mastoidectomy. Two types of lesions may require surgery: (1) those in which inadequate or no previous antibiotic therapy or chemotherapy has been used and in which develop a complication of acute mastoiditis, such as subperiosteal abscess, sigmoid sinus thrombophlebitis, meningitis, suppurative labyrinthitis, brain abscess, or facial nerve paralysis; (2) those due to infection with an organism that is resistant to the available antibiotics and in which the discharge from the ear persists, despite adequate chemotherapy and antibiotic therapy, with the development of the classical signs and symptoms of coalescent mastoiditis. These signs and symptoms are persistent discharge of more than three or four weeks in acute otitis media, sagging of the posterosuperior meatal wall, periosteal thickening and tenderness over the mastoid process, pain, especially nocturnal, low grade fever, or any of the abovementioned complications due to extension of the infection to an adjacent structure. Roentgenograms are also helpful in determining whether a mastoiditis requiring surgical treatment is present. The radical mastoid operation is indicated in cases of chronic suppurative otitis media of the bone invading type. With few exceptions, these are cases of cholesteatoma formation in the attic or antrum, with a marginal type of tympanic membrane perforation from which the typical flakes of cholesteatoma may be obtained by attic irrigation. In cases in which the cholesteatoma cavity is shallow and easily accessible, it can be rendered dry, odorless, and inactive by occasional attic irrigation. In cases in which the cavity is deep and less accessible, the radical or modified radical mastoidectomy is indicated to exteriorize the cholesteatoma cavity to arrest the continued bone erosion and eliminate the danger of extension to an adjacent structure, with one of the complications mentioned.

TUBERCULOSIS OF ENDOMETRIUM

To the Editor:—*A 24-year-old woman, with one normal child 3 years old, gave birth one month prematurely to a second child. One month following delivery pneumonia developed in the infant, and it died. Postmortem examination revealed miliary tuberculosis. Subsequently the mother had a dilatation and curettage, and the scrapings showed tuberculosis of the endometrium and cervix. She has been receiving a course of streptomycin and p-aminosalicylic acid. The erythrocyte sedimentation rate has dropped to normal values. What further course of action would you pursue?*

M.D., Idaho.

Answer.—The treatment is correct and should be continued, provided the proper dosage is given (1 gm. of streptomycin twice a week and 12 gm. of *p*-aminosalicylic acid a day in two to four doses). It may be wise to alternate streptomycin with dihydrostreptomycin to prevent vestibular damage that may come from long administration of streptomycin or auditory damage that may occur with use of dihydrostreptomycin. Recently the two have been combined so that the toxic effects of each may be minimized. Such a combination is commercially available. The length of time of treatment will vary, but under the circumstances it would be well to continue it for 10 to 12 months. At the end of that time, another dilatation and curettage should be performed, and a careful pathological examination and animal inoculation should be done to see if a cure has been effected. If any doubt exists, treatment with isoniazid may be started, alone or preferably in combination with the other two drugs.

LEFT-HANDEDNESS

To the Editor:—*1. Does left-handedness cause inhibitions that might delay normal development, for example, development in speech? 2. Can it cause later adjustment problems if improperly handled? 3. Is it preferable to allow the tendency to use the left hand to continue or to take reasonable steps early to discourage this tendency? 4. What adjustment should be anticipated and aided if use of the left hand is allowed to continue?*

William E. Russell, M.D., Richland, Wash.

Answer.—1. Left-handedness does not necessarily cause inhibitions that may delay normal development. It may do so when it is not well established so that there is confusion. 2. Later adjustment problems may be caused if left-handedness is improperly handled. 3. It is preferable to allow the use of the left hand if this is the distinctly preferred hand. A single possible exception to this may be the encouragement of the use of the right hand in eating so as to avoid later social embarrassment. This should not be persisted in, however, if it proves difficult. 4. If, as school age is approached, there seems to be confusion in learning to read, with evidence of a tendency to reverse visual images, the special methods for teaching of reading that have been developed for such children should be utilized. The school should be in the position to handle this problem if it arises.

ANTICOAGULANTS FOLLOWING CEREBRAL HEMORRHAGE

To the Editor:—*Would use of any of the anticoagulants be indicated in treatment of a 73-year-old man with severe arteriosclerosis who had a cerebral hemorrhage? The left arm is paralyzed and the speech center is partially affected. The blood pressure was 200/100 shortly after the stroke; however, it now varies between 140 and 150 mm. Hg systolic and between 86 and 90 mm. Hg diastolic.*

M.D., Kansas.

Answer.—There is insufficient evidence in favor of the use of anticoagulants in such patients, and there is a possibility that damage may be done. Until convincing proof is available, it would appear inadvisable to use them.

REMOVAL OF CERUMEN

To the Editor:—*Often I see patients who have hard, impacted cerumen in their ears, which precludes examination of the tympani membrane. Sometimes, attempts to remove the cerumen with a curette after instilling a few drops of hydrogen peroxide and washing the ears with a syringe fails. Frequent use of a glycerin solution over a period of days does not always succeed in loosening it enough so that it can be removed successfully without damaging the external auditory canal. What is the best method of removal? What is the composition of cerumen? Is there any reason why trypsin, Alevaire (an aqueous solution containing 5% glycerin, 2% sodium bicarbonate, and 0.125% of an alkylaryl polyether alcohol), streptokinase, or streptodornase should not be instilled into the ear to reduce the viscosity of cerumen?* R. T. Hood Jr., M.D., Craig, Ala.

Answer.—Cerumen is a natural secretion of the ceruminous glands, which together with sebaceous glands and hair follicles are located in the outer membranocartilaginous portion of the external auditory canal. Some persons tend to secrete excessive amounts of cerumen, just as some persons tend to perspire freely. The standard methods for removing impacted cerumen include syringing with water alone, syringing after preliminary softening of the cerumen by frequent instillation of sodium bicarbonate in glycerin or hydrogen peroxide, and the use of an ear spoon or curette. Generally, cerumen can be removed successfully when gentleness, patience, and a correct technique are employed. Fresh cerumen is composed of variable amounts of water, fats, free fatty acid, cholesterol, and lecithin. While there are no known contraindications to the instillation of trypsin, Alevaire, streptokinase, or streptodornase into the external auditory canal, it is doubtful whether they are suitable for digesting or reducing the viscosity of cerumen.

PREMATURE INFANT

To the Editor:—*What would be the results of giving a 3 lb. (1,360 gm.) premature infant 3¾ grains (0.24 gm.) of caffeine and sodium benzoate and 1 cc. of nikethamide (Coramine) intramuscularly at the same time? Is this overdosage? What would be the correct dose of each for an infant of this weight?*

Edward S. King, M.D., Shelby, N. C.

Answer.—The doses of caffeine sodium benzoate and nikethamide suggested for administration to a premature infant of the size mentioned are unquestionably excessive. The results would be an increase in the respiratory and cardiac rates. For certain conditions in premature babies in which cardiac or respiratory stimulation is desirable, authorities have suggested use of nikethamide in a dose of 0.5 cc. and caffeine sodium benzoate in a dose of ⅙ to ½ grain (10 to 30 mg.). The use of these drugs in premature babies has, according to many physicians, doubtful value.

IRRITABLE BOWEL SYNDROME

To the Editor:—*A patient has spastic colitis in the sigmoid and descending colon, with irritability and frequent contractions. A barium enema revealed normal filling, and no ulcer or filling defects, diverticula, or other organic pathological conditions were noted. The ascending and transverse colon are normal in every respect. Roentgenograms of the upper gastrointestinal tract reveal no evidence of an organic lesion. For six months, gripping low abdominal pains associated with gas pockets in the large bowel and constipation have been experienced. Sensitivity to certain foods is present, and attempts to eliminate the offending foods have been made. What is the current treatment for spastic colitis? Antispasmodics and petrolatum have been used.*

M.D., Florida.

Answer.—The term "spastic colitis" is not well chosen, because in persons with this condition there is no intestinal inflammation to account for the symptoms. The condition commonly referred to by this term is better described as the "irritable bowel syndrome," but even this term is not entirely descriptive of the condition. It points, however, to the fact that the condition is in the nature of a part of a general bodily disturbance in which the bowel may play a role. This role may be major, and, when the symptoms are directed largely to the abdomen and intestinal dysfunction occurs, use of one of the antispasmodics is helpful. The main need is for adoption of better habits of eating and living. It is especially important that such patients get adequate rest and restful relaxation and that they eat a nutritious diet, in which a good breakfast and adequate fluid intake are of the greatest importance. At times, lubricants taken orally or as rectal instillations are helpful, but it is best to use them for only a short time to help regulate bowel function.

HEPATITIS COMPLICATING PREGNANCY

To the Editor:—*A 35-year-old para 2 whose first child was delivered normally had jaundice at the time her second child was delivered (stillborn), in 1949. Symptoms, such as malaise and epigastric distress, began five days before the onset of labor. At the start of labor, the patient was jaundiced. Delivery proceeded uneventfully. Subsequently the patient became critically ill. The jaundice deepened, and the patient became extremely lethargic and was unable to retain food. The icteric index rose to 56, the cephalin flocculation was 4+, and the serum alkaline phosphatase level was 17 Bodansky units. With the usual treatment measures, including administration of glucose intravenously and vitamins B and K and rest, the patient recovered. For the last three years she has been well, except for moderate "gas distress." Results of a recent physical examination were entirely normal. The blood cell count was normal. The total blood protein level is now 6.76 gm. per 100 cc. (albumin 5.55 gm. and globulin 1.21 gm). The cephalin flocculation is 1+. The patient is anxious to have more children. Would pregnancy be dangerous?* Henry Krochmal, M.D., Meriden, Conn.

Answer.—The history suggests infectious hepatitis complicating pregnancy at term, resulting in fetal death in utero, subsequently clearing on supportive therapy, and, at present, without demonstrable residuals. There is no reason, on the basis of these facts, to suppose that another pregnancy would be dangerous for this woman. Emphasis should be placed on the patient's receiving optimal nutritional levels of protein, minerals, and vitamins, and she should be carefully followed during future pregnancies. Other than these measures, there seems to be no need for special precautions.

BLOOD TRANSFUSION

To the Editor:—*What laboratory procedures are necessary to determine the need for blood transfusion and the amount of blood required? Is there any objection to administration of the blood of a person from one race to a person from another? What objection is there to the taking of blood from a donor who has partaken of a fatty meal or from persons having high blood pressure?* M.D., New York.

Answer.—Which laboratory tests are required for determining the need for blood transfusion depends on the condition of the patient and the possible reason for the transfusion. In patients in profound shock or with profound blood loss, transfusion may be necessary before laboratory studies can be done. For certain patients undergoing surgical procedures only erythrocyte and hemoglobin estimations may be needed, while for patients with blood dyscrasias elaborate studies usually are required. There is no major objection to administering blood from persons of one race to those of another, but the possibility of introducing incompatible antigens must be kept in mind; for example, D^u variants may be encountered more frequently in one race than in another, and precautions to detect such variants must be taken in blood typing procedures. It is believed that use of blood from fasting donors reduces the incidence of allergic reactions. Also, the presence of chyle in plasma may obscure cloudiness due to bacterial contamination. If a hypertensive person should have a cardiovascular accident following blood donation, the accident may be charged unjustifiably to the bleeding procedure. Therefore, it is wise to bleed persons with hypertension only as a therapeutic measure.

SCANTY MENSTRUATION AND HOT FLASHES AT 27

To the Editor:—*A patient, 27 years old, complains of having had scanty menstruation for eight months, hot flashes for six months, and nervousness and irritability for five months. The flow has been brighter in color for the last six months. The patient has had no pregnancies and menstruates regularly for 4 days every 28 days. She is 5 ft. (152.4 cm.) tall, weighs 130 lb. (59 kg.), and has fair skin and blond hair. Her blood pressure is 120/80 mm. Hg, her temperature 98.8 F, and her pulse rate 80 beats per minute. She has a congenital cataract. Results of pelvic examination were essentially normal except for the presence of a small cyst on the right ovary. The grandmother entered the menopause at age 30, the mother at age 36, and an aunt at age 32. I would appreciate information regarding treatment. This patient has had three injections of estrogens, with little improvement.* *Loren A. Dunton, M.D., DeLand, Fla.*

Answer.—Management of this case should be started by a complete medical evaluation, and efforts should be made to improve the patient's general health. The height and weight figures suggest that weight reduction is urgently indicated. This should be accomplished by a high protein, high vitamin, low calorie diet. If anemia is present it should be corrected by appropriate iron therapy. The basal metabolic rate should be determined, and small doses of thyroid given if it is normal or below. The patient's habits and social history should be explored to determine possible sources of irritability, nervousness, or conflict, and such factors should be corrected as far as possible. General healthful measures should be outlined, with particular reference to adequate sleep, diversion from routine duties and responsibilities, and appropriate daily outdoor exercise. Small doses of phenobarbital or mild sedatives combined with amphetamine may be a useful addition to the above regimen. Despite the family history of "premature menopause," the occurrence of the climacteric at the age of 27 is so extremely unusual that it should not be considered in this case so long as regular menstruation occurs. Accordingly, sex hormone therapy is not indicated. It should be emphasized that whenever use of estrogens is indicated, inexpensive active preparations for oral use of any desired potency are available; injections should be used only when oral preparations are not applicable. The ovarian cyst should, of course, be examined regularly but need be removed only if it causes pain, if it persists at a diameter of greater than 5 cm., or if a similar cyst appears on the opposite side.

COLOR OF OPERATING ROOM WALLS

To the Editor:—*What is the most suitable wall coloring for surgical theaters in hospitals?*

Niksa Mikajlovic, M.D., Jugoslavia.

Answer.—The color most used in operating rooms in the United States is a soft shade of gray-green. This choice is based on the following principles: the wall color should be restful to the eye, it should have reasonably good light reflective characteristics without glare, and, while being relatively neutral in effect, it should contain a satisfying amount of color complementary to the vivid coloring of the area of visual concentration, i. e., the body tissues.

FREQUENT DESIRE TO URINATE

To the Editor:—*A 72-year-old patient has advanced paralysis agitans (Parkinson's disease). Her chief complaint is a frequent desire to urinate, especially at night. Occasionally at such times, attempts to urinate result only in excretion of a drop or two of urine and sometimes not even that much. The use of trihexyphenidyl (Artane) hydrochloride, sedatives, or hyoscyamus does not relieve this symptom. Is there anything else I can give her?*

M.D., New York.

Answer.—Urinary disturbances occur rarely in paralysis agitans; they are not characteristically associated with the disease. It would be advisable, therefore, to look for other causes of the urinary urgency and frequency, e. g., urinary calculi. If there is no local pathological condition in the urinary tract, the patient described may have one of the rare parkinsonian urinary complaints. Since trihexyphenidyl, sedatives, and hyoscyamus do not relieve the symptom, use of belladonna alkaloids may be tried. A combination that seems to work fairly well is trihexyphenidyl, the belladonna alkaloids, and an antihistaminic drug, such as diphenhydramine (Benadryl) or Thephorin (2-methyl-9-phenyl-2,3,4,9-tetrahydro-1-pyridindene). The use of a muscle relaxant, such as mephenesin, may also be tried.

PERNICIOUS ANEMIA

To the Editor:—*When a satisfactory blood level has been obtained in a patient with pernicious anemia, what is the minimum amount of liver extract or liver extract and vitamin B_{12} that should be given each month to maintain this condition in a case in which it is not convenient to perform laboratory checks on the patient's condition?*

M.D., Illinois.

Answer.—The quantity of liver substance necessary for maintenance of normal blood levels varies among patients with pernicious anemia. Nevertheless, an ample quantity of antipernicious anemia substance for a patient without complications would be supplied by weekly injection of liver extract containing 20 to 30 mcg. of vitamin B_{12}. There is evidence to suggest that the liver extract may be satisfactorily replaced by a solution of vitamin B_{12}. If an erythrocyte count could be obtained even at six month or yearly intervals, subsequent dosage intervals might be predicted on the basis of the level present. Theoretically, four times the weekly requirement may be given in one injection each month; however, some patients do not tolerate well the larger single injection, and there is some question as to whether the single larger quantity of solution of vitamin B_{12} would be as effective as the same amount divided into smaller doses and given oftener.

CONTRACTION IN SCARS

To the Editor:—*Please advise what to do to prevent scar contractures. A flexion contracture of the third and fourth fingers following a burn is developing in a 20-year-old patient.* *C. L. Concklin, M.D., Corpus Christi, Texas.*

Answer.—The only satisfactory treatment of scar contracture is complete excision of the scar and covering of the resulting raw surface with a whole thickness graft of skin from another part. The healing of a raw surface always results in scar tissue formation. This gradually contracts, and particularly so if the original burn or injury involved a flexor surface. The resulting contracture tends to become more marked with growth of the hand, because scar tissue does not grow as normal tissues do. Attempts to overcome flexion contractures by splinting and stretching are futile. The fact that tissue has been lost must be faced, and the only satisfactory treatment is complete replacement of the destroyed tissue.

THE AUSCULTATORY GAP

To the Editor:—*A white woman, aged 84, has had a systolic blood pressure of from 190 to 240 mm. Hg for 10 years; the diastolic pressure remains at 75 to 89 mm. Hg. Several physicians have examined her, and all are puzzled by the fact that, as the mercury in sphygmomanometer drops the sound disappears at 170 mm., and there is silence until it reaches 130 mm., when it reappears; it finally disappears, as stated, at from 75 to 89 mm. What is the significance of this phenomenon? This is the only such patient I have seen in 25 years.* *Dan W. Scott, M.D., Houston, Texas.*

Answer.—This phenomenon is the so-called auscultatory gap. The sound disappears after the initial systolic sound is heard, only to reappear 20 to 40 mm. Hg lower. It is not a rare occurrence in hypertension, focal arteriosclerosis, and aortic stenosis. Its mechanism is not known, and it has no known prognostic value. Its chief importance seems to be that it may cause an error in the systolic reading if the upper reading is missed owing to the gap.

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 152, NO. 17

CHICAGO, ILLINOIS

COPYRIGHT, 1953, BY AMERICAN MEDICAL ASSOCIATION

AUGUST 22, 1953

DIFFERENTIAL DIAGNOSIS OF POLIOMYELITIS

Clifford G. Grulee Jr., M.D., New Orleans

It is startling that the diagnosis of a disease on which so much professional effort and interest has been focused is suspected far more frequently than it is definitely made. A final diagnosis, even in the presence of typical clinical features, must depend on demonstration of the virus, either by animal inoculation or tissue culture techniques, as well as on changes in antibody titers between the acute and convalescent phases. Nevertheless, the diagnosis of poliomyelitis can be presumed with some confidence on purely clinical grounds as can the diagnosis of other viral diseases, such as measles or mumps, which is also most difficult to substantiate. In epidemics the suggestive spinal fluid findings and the typical spotty lower motor neuron type of paralysis may often justify an unequivocal clinical diagnosis. At times of high poliomyelitis incidence, however, the diagnosis of any vague febrile illness offers difficulties comparable to those of uncomplicated chickenpox if there is no skin rash. When it is realized that many abortive and nonparalytic cases occur, it should also be realized that persons with these mild forms of the disease may be just as important in spreading poliomyelitis as the less fortunate patients with obvious paralytic involvement.

In the following discussion, differential diagnosis will be considered under four headings, namely, cerebrospinal fluid changes, diseases exclusive of poliomyelitis that are associated with paralysis, virus and other infections of the central nervous system, and simulated illness caused by fear.

CLINICAL FEATURES

The diagnosis of paralytic poliomyelitis is usually suspected before a physician is called, and typical clinical features often allow quick confirmation. Paralysis is flaccid, with patchy asymmetric involvement of muscle groups relatable to segmental spinal innervation, and the deep and superficial reflexes are depressed or absent. Nuchal rigidity as well as signs such as resistance to straight-leg raising and the tripod sign when the patient attempts to sit erect are present in variable degree. Painful spasm in uninvolved muscle groups may be extremely disturbing. Occasionally, when paralysis is extensive, segmental spinal innervation is not recognizable. In this circumstance, associated clinical findings, such as intact cutaneous sensibilities, persistence of some muscle function in the fingers and toes, absence of increased intracranial pressure, and the general characteristics of the clinical illness, furnish a basis for the best possible judgment.

CEREBROSPINAL FLUID CHANGES

While routine lumbar puncture is certainly not always necessary or even desirable in an otherwise typical case, any real doubt as to diagnosis justifies its performance. If the disease is poliomyelitis, cerebrospinal fluid changes can usually be expected; but during the first two or three days of the clinical course, whether paralysis develops subsequently or not, examination may reveal normal findings in a small percentage of patients. After clinical diagnosis is reasonably established, little or no prognostic or therapeutic advantage is realized by study of the cerebrospinal fluid, and an acutely ill patient may be exposed to unnecessary manipulation, discomfort, and emotional distress. Typically, blood cell counts vary from 10 to 200 per cubic millimeter but may go as high as 1,000 to 1,200 per cubic millimeter.[1] Protein values are highest by the sixth week [2] and are most elevated in patients with paralysis.[3] Important in differentiating poliomyelitis from bacterial meningitis are the facts that the sugar in the spinal fluid remains normal and that intraspinal pressures are not so greatly increased. Probably lumbar puncture is most helpful in diagnosing nonparalytic forms of the disease. In order to institute appropriate supportive regimens of rest and medical supervision and to formulate an accurate epidemiological picture, detection of such cases has become increasingly important.

CONDITIONS CAUSING CONFUSION

What are some of the conditions with which paralytic poliomyelitis may be confused? As Wilson [4] points out, the first decision is whether true paralysis or merely

---

From the Department of Pediatrics, Tulane University School of Medicine, and the Charity Hospital of Louisiana at New Orleans.

Read before the joint meeting of the Section on Pediatrics, the Section on Physical Medicine and Rehabilitation, and the Section on Preventive and Industrial Medicine and Public Health at the 102nd Annual Session of the American Medical Association, New York, June 4, 1953.

[1] Grulee, C. G., Jr., and Panos, T. C.: Epidemic Poliomyelitis in Children: Clinical Study with Special Reference to Symptoms and Management of Bulbar Poliomyelitis, Am. J. Dis. Child. **75**: 24 (Jan.) 1948.

[2] Campbell, W. G.: Diagnosis of Poliomyelitis, Am. J. Phys. Med. **31**: 215 (Aug.) 1952.

[3] Ford, G. D.; Eldridge, F. L., and Grulee, C. G., Jr.: Spinal Fluid in Acute Poliomyelitis: Changes in Total Protein and Cell Counts on Serial Study, Am. J. Dis. Child. **79**: 633 (April) 1950.

[4] Wilson, J. L.: Acute Anterior Poliomyelitis, in The Child in Health and Disease, ed. 2, Baltimore, Williams & Wilkins Company, 1952.

pseudoparalysis is present. Particularly in children, a reason for splinting a painful part may be difficult to discover; osteomyelitis, trauma, scurvy, and syphilitic osteochondritis are possible explanations. If osteomyelitis is the cause, the white blood cell count is usually elevated, with predominance of polymorphonuclear cells. Roentgen examination, though frequently uninformative early in the clinical course, is often useful for later comparisons and may show periosteal elevation and osteosclerotic lesions. Typical cerebrospinal fluid changes of poliomyelitis are not present, normal deep reflexes are usually demonstrable, and, although some meningismus may be present, true nuchal rigidity is not found. Finally, repeated blood cultures should yield the causative bacteria.

Trauma without infection can be a confusing cause of apparent paralysis. Here again, normal reflexes, absence of other signs of illness, a history of injury, and local manifestations, such as swelling and tenderness, are usually adequate to confirm the correct diagnosis.

Infrequently in very young patients the pseudoparalysis of scurvy or of syphilitic osteochondritis must be excluded. Having considered either possibility, however, a dietary history, roentgen examination, and serologic tests for syphilis serve to resolve diagnostic doubts.

The differentiation of rheumatic fever from poliomyelitis has not been a problem in my experience, but both the splinting of a painful rheumatic joint and the unwillingness of a child with chorea to exhibit his difficulty have been cited as causing confusion. Either can be excluded by careful physical examination.

Among the numerous causes of peripheral neuritis are lead poisoning, diphtheria, thiamine deficiency, ingestion of some of the newer insecticides,[5] and even botulism. Only the first two will be discussed. Polyneuritis resulting from lead intoxication is relatively infrequent in children but is commoner in adults. After an insidious onset in young patients, the signs of acute poisoning resulting from an extreme degree of intracellular edema in the central nervous system may be so spectacular that the child is brought to medical attention promptly and not only is given treatment but is removed from further exposure to lead. Evidences of increased intracranial pressure are striking, and frequent, if not continuous, convulsive episodes may precede the appearance of deep coma. In chronic lead poisoning, weakness, or paralysis, first appears in muscle groups that are most used, such as dorsiflexors of the foot, and typical peripheral neuritis develops in a symmetrical and generalized distribution. A history of exposure together with basophilic stippling of erythrocytes in the peripheral blood, measurement of lead excretion in the urine and its level in the blood, and extremely dense epiphyseal lines on roentgen films established a diagnosis.

Peripheral neuritis following diphtheria is an important though relatively infrequent problem. Its obvious association with preceding diphtheria may be obscured by appearance of the complication three to six weeks after the acute illness. Bulbar signs entirely similar to those of poliomyelitis generally appear first. Palsies of the 9th, 10th, and 12th cranial nerves are frequent. Head drop, also a frequent finding in poliomyelitis, is characteristically present. If, however, the Schick test is positive and, in addition, ocular paralyses develop, diphtheria is to be strongly suspected. Frequently ptosis appears, and accommodation is lost. Skeletal paralysis appears last and is widespread and bilateral, and deep reflexes are absent. Paralyses persist for varying periods of weeks or even months, and quite typically recovery takes place in reverse order, the last muscles to become involved are the first to recover.[6] Pain, which can be such a distressing feature in poliomyelitis, is not prominent in postdiphtheria paralysis. Although protein is usually increased, there is no remarkable pleocytosis of the cerebrospinal fluid. Complete recovery can be assured to all survivors.

VIRUS INFECTIONS

Acute infectious neuronitis, or Guillian-Barré syndrome, is uncommon and poorly understood. It has even been described following diphtheria.[7] As defined, it is an ascending type of symmetric paralysis associated with an increase in protein content of the cerebrospinal fluid, but without parallel increase in cells. Paraesthesias and areas of anesthesia are usually present. Paralytic involvement most commonly affects the proximal portions of the extremities, and bulbar signs are late to appear. In its classic form, the syndrome is not difficult to recognize, the albuminocytological dissociation furnishing an obvious clue. A greater frequency in winter than in summer months may also be helpful in diagnosis. The fact that acute neuronitis often begins a few days after an upper respiratory infection might remind one of the so-called biphasic course that is seen in approximately one-third of all cases of poliomyelitis. Actually, coryza, cough, and nasal obstruction are not prodromal symptoms of poliomyelitis, and their occurrence at the beginning of an illness may even suggest consideration of other diagnostic possibilities.

Acute neuronitis, not conforming in important respects to the Guillian-Barré syndrome, is sometimes encountered and is virtually impossible to diagnose when poliomyelitis is also present in a community. To complicate the issue further, recurrent bouts of neuronitis have been reported. As an example, one physician's wife had three such paralytic attacks in a period of as many years with complete recovery from each.

Choriomeningitis, mumps meningoencephalitis, Coxsackie virus disease, and some mild cases of arthropod-borne virus encephalitis may be more difficult if not impossible to differentiate from poliomyelitis. In general, the cerebrospinal fluid blood cell counts are higher in the case of both mumps and choriomeningitis. The latter disease, typically of sporadic occurrence, begins with grippal illness and can only be suspected clinically. Mumps meningoencephalitis is far more frequent and may be either epidemic or endemic. The fact that many patients with typical mumps parotitis have an increase in blood cells in the spinal fluid and the further fact that meningoencephalitis can occur in the absence of parotid involvement deserve emphasis. Paralyses are infrequent in arthropod-borne viral encephalitis and are also extremely rare with the complications of mumps, with Coxsackie infection, or with choriomeningitis. Also, the complement fixation test for poliomyelitis of Casals and Olitsky[8] promises to be extremely useful in excluding diseases of this type. The greatest problem then in differential diagnosis concerns nonparalytic poliomyelitis and, generally speaking, is best resolved by serological examination of blood samples during both the acute course and convalescence.

---

[5] Chamberlin, H. R., and Coake, R. E.: Organic Phosphate Insecticide Poisoning: Report of 2 Cases Due to Parathion with Recovery in 1, A. M. A. Am. J. Dis. Child. 85: 164 (Feb.) 1953.

[6] Smith, M. H. D.: Personal communication to the author.

[7] Delp, M. H.; Sutherland, G. F., and Hashinger, E. H.: Post-Diphtheritic Polyneuritis: A Report of 5 Cases with Albuminocytologic Dissociation Simulating Guillian-Barré's Syndrome, Ann. Int. Med. 24: 618 (April) 1946.

The clinical picture of viral encephalitis, particularly of arthropod-borne types, varies to such an extent that generalizations are dangerous. Within the continental United States, we are primarily concerned with three types; namely, St. Louis encephalitis and eastern and western equine encephalitis. Differentiation from poliomyelitis begins with a carefully taken history together with knowledge of pertinent epidemiological data. It has been established that mosquitoes and other insects, with birds acting as intermediate hosts, spread these diseases. Eklund,[9] in the Minnesota epidemic of 1946, showed clearly that the incidence of equine encephalitis ceased abruptly after the first hard frost killed most of the insect population, whereas the incidence of poliomyelitis did not. Outbreaks occur in hot weather, are usually of shorter duration, and affect fewer persons than is the case of poliomyelitis. Although it does not necessarily follow that equine encephalitis parallels the occurrence of the disease in horses, this is often true and may be helpful in recognizing initial cases in an epidemic.

In this group of diseases, wide variation between the extremes of asymptomatic infection and fulminant and rapidly fatal illness are known to occur. In all types, stupor and even coma are common in contrast to the mental alertness of most patients with poliomyelitis. Important exceptions provided by patients with bulbar and respiratory poliomyelitis are attributable to impaired pulmonary ventilation with hypoxia and accumulation of carbon dioxide. Paralysis of respiratory muscles, obstruction of the airway, failure of the central respiratory center, or a combination of these factors may be responsibile. Convulsions that are not a part of the symptomatology of poliomyelitis are typical, severe manifestations of infections with St. Louis or either strain of equine encephalitis virus. Although spinal fluid findings are not helpful in distinguishing these diseases, one may occasionally be helped by finding marked increases in intracranial pressure with bulging fontanelles in infants and young children and papilledema in older patients. An initial temperature of 105 F and higher exceeds expected readings of 101 to 103 F in poliomyelitis. Headache, backache, and muscle, as well as bone, pain are common, again surpassing in severity similar complaints in poliomyelitis. Photophobia is a significant differentiating point favoring the diagnosis of arthropod-borne virus infection.

Tetanus is not associated with flaccid muscular paralysis but on occasion can be confused with poliomyelitis. Tonic spasms give rise to apparent stiffness of the neck and back and may be associated with severe muscle pain. Trismus and risus sardonicus are frequent and helpful clinical signs. Although a wound that served as portal of entry may have been trivial and unnoticed, it should be looked for, and a careful history of immunizations or a record of the patient having received tetanus antitoxin within two or three weeks of onset should be sought. Finally, the initiation by a variety of mild stumuli of generalized muscular spasms, with the extremities and trunk held in extension, is sufficiently typical to warrant a clinical diagnosis.

Last and perhaps most important is the differential diagnosis of bacterial meningitis and preparalytic or nonparalytic poliomyelitis. In addition to reduction of sugar in the spinal fluid, the blood cell count in bacterial meningitis is usually high enough to impart turbidity to the specimen, and smears reveal not only a predominance of polymorphonuclear leukocytes but usually the causative bacteria. Cultures of the spinal fluid later confirm the suspected identity of the offending organism. Actually, meningitis and poliomyelitis are quite dissimilar, but in each stiffness of the neck is an early clinical sign. The patient with meningitis is sicker and does not respond as readily as the patient with poliomyelitis. The temperature is usually higher, and, in addition to nuchal rigidity, evidences of cerebral involvement become apparent. The Babinski sign is elicited, and convulsions are frequent, but early paralyses are rare. Muscle tone is often increased, chills are not unusual, and evidences of increased intracranial pressure are to be expected. Tuberculous meningitis represents a notable exception to these statements. The blood cell count is not so high as in more acute types of infection, and except at the very onset the predominating blood cells are lymphocytes. Until very recently, effective techniques for culturing the tubercle bacillus were not available. Demonstration of tuberculous involvement elsewhere strongly suggests a similar etiology of the meningitis. Finally, the onset of symptoms is usually more insidious. Personality changes frequently appear first and are followed after days or weeks by meningeal signs and then by encephalitic manifestations.

ILLNESS CAUSED BY FEAR

Before concluding this discussion, mention of "poliophobia" is warranted. During epidemics, dread of poliomyelitis is so great that any type of complaint may be interpreted as a dangerous evidence of disease. Prodromal symptomatology is involuntarily imitated, hysterical paralyses may appear, and hyperventilation, or feelings of suffocation, may suggest respiratory involvement. Complete aphonia and a sluggish gag reflex may be encountered. Persons may complain of a lump in the throat and may fear that bulbar involvement is developing. When these persons are examined, ingenuity may reveal that an apparently paralyzed muscle actually functions in one type of movement though not in another. Deep tendon reflexes are normally brisk, and frequently areas of hyperesthesia or paraesthesia having bizarre distribution are described. None of the abnormal findings persist during sleep, temperature is not significantly elevated, bladder and bowel function are normal, and paralytic findings often are altered by suggestion. Demonstration for the patient's benefit of normal spinal fluid has not been particularly helpful in my experience. An understanding attitude and repeated physical examination to confirm the absence of real disease, together with prescription of rest, are usually adequate to allay anxiety and this eradicates signs of illness.

---

[8] Casals, J., and Olitsky, P. K.: A Complement-Fixation Test for Poliomyelitis Virus, Proc. Soc. Exper. Biol. & Med. 75: 315 (Nov.) 1950.

[9] Eklund, C.: Human Encephalitis of the Western Equine Type in Minnesota in 1941: Clinical and Epidemiological Study of Serologically Positive Cases, Am. J. Hyg. 43: 171 (March) 1946.

SUMMARY AND CONCLUSIONS

The commonest problem faced by the physician, with respect to the diagnosis of poliomyelitis, is differentiation of nonparalytic or atypical types of poliomyelitis from other obscure infections of the central nervous system. Here the examination of paired serums, one obtained during the acute course and one during convalescence, may be crucial. Lumbar puncture can be of great help when real diagnostic doubt exists, but it is superfluous when diagnosis is supported by typical clinical features. In differential diagnosis, not only those diseases that are associated with paralyses and those primarily involving the central nervous system must be considered, but also flu-like illnesses and even "poliophobia" must be excluded.

1430 Tulane Ave.

THE AMERICAN BOARD OF INTERNAL MEDICINE

CHAIRMAN'S ADDRESS

Truman G. Schnabel, M.D., Philadelphia

The American Board of Internal Medicine was founded by the cooperation of the Section on the Practice of Medicine of the American Medical Association and the American College of Physicians in 1936. It has continued to function under their sponsorship and by authorization of the Advisory Board for Medical Specialties since that year. For many years before, an increasing number of physicians had limited their practice to special fields of endeavor after special study and application to practice. There was the physician, however, who was reputed to be a specialist according to the talk of the town; this was initiated on the physician's own prompting, not because he had had adequate preparation and experience or could conduct a really good follow-up on his patients. During these same years, genuine and self-styled specialists took on their role largely because medicine and medical education were making great strides that made it impossible for one man to deal with the whole field of medicine in a satisfactory fashion. It can be said, too, that even then "specialist" had become a by-word and that the patient public was pressing indiscriminately for "specialist" attention.

As a result of this trend, the Council on Medical Education and Hospitals had to concern itself with standards of education and training for special fields in practice to the end that most of the American boards emerged by its approval and that of the newly established Advisory Board for Medical Specialties. The Board of Ophthalmic Examinations, as the present American Board of Ophthalmology was originally named, had been functioning since 1917 and, along with three other working boards, served in principle as the pattern for all other boards that were to follow.

DETERMINATION OF COMPETENCY

In effect, these were and are agencies created solely for the determination of special competency on the part of physicians who have usually gone through training periods of varied duration. For the estimation of such competency, no one thought of any better technique than that of formal and unprejudiced examination. Whatever may be said of examinations, no one has suggested, so far as I know, a better means of carrying out the objectives of the special boards. Board members would be greatly relieved and would welcome any suggestions that would enable them to pass fairer and better judgment on candidates than are now made by evaluation of written and oral performance. Examinations remain essential to all effective procedures of training and instruction.

In tracing developments before the organization of our dually sponsored board, Dr. Walter Bierring, in his history of the board,[1] makes it quite clear that, in addition to sharing a common heritage with its companion boards, it also shares their objectives with reference, of course, to internal medicine. Bierring's fine history also records the deliberations of the regents of the American College of Physicians for some years before the formation of the board. The minutes show the early concern with examinations as a means of determining eligibility for fellowship. The college had its prototypes in the Royal Colleges of Physicians of London and Edinburgh, and so, in emulation of these distinguished bodies, rigid examinations were considered as a means of revealing unusual accomplishment on the part of aspiring candidates.

After such considerations and others too, came the final resolution to organize, with the Section on the Practice of Medicine, an "American Board for the Certification of Internists." Through it all, the founders obviously felt that the new board would establish needed criteria and identification for the qualified internist. John Musser, in enthusiatic support of the project, anticipated "A far-reaching effect upon appointment to hospital staffs, departments of internal medicine and other institutional positions." In retrospect, the salutary effects that he had in mind came about but, unfortunately, the organization of medical staffs came with them so that noncertified physicians are barred from top-ranking positions. The board deplores such ill-advised policy as it does the application of differential emoluments, appointment, or promotion based on board certification. It was, however, affirmed by

---

Read before the Section on Internal Medicine at the 102nd Annual Session of the American Medical Association, New York, June 3, 1953.

[1] Bierring, W. L.: History of the American College of Physicians, Philadelphia, American College of Physicians, 1940, p. 87.

all that the undertaking would have a telling influence on graduate education, on internist performance, and ultimately on patient care.

ADVANCED THINKING AND PHILOSOPHY

The currently published data pertaining to the Board of Internal Medicine,[2] with regard to its organization, purposes, and eligibility qualifications for certification, still reflect the advanced thinking and philosophy of its first members (Reginald Fitz, Jonathan C. Meakins, Ernest E. Irons, G. Gill Richards, John H. Musser, O. H. Perry Pepper, Walter L. Bierring, William S. Middleton, and David P. Barr). That "Preparation must be based on years of continuous thoughtful study" and that "Time and training are but a means to the end of acquiring a broad knowledge of internal medicine" are fundamentals that apply as much today as they did 17 years ago. The possession of a sound knowledge of the basic sciences as applied to disease was asked of examinees and has been expected of them by the board over the intervening years. No other suggestions, however, have been made with regard to the substance of training programs, and no suggestions have ever been proposed concerning methods of teaching. In other words, with its function well defined as an examining one, the board has never touched the field of medical education directly, either undergraduate or graduate. There has always been the recommendation to prospective candidates of a sufficiently long residency in a good location and under well-fitted critical teacher-physicians, with the added admonition "that the responsibility of acquiring knowledge rests with the candidate and the responsibility of maintaining the standards of knowledge required for certification rests with the board." Better than all else was the fact that the first board members considered it unwise to lay down rigid rules for candidates with regard to location and mode of training. Schooling was left up to the professional staffs of hospitals and medical schools. The minimum time requirement acceptable for training purposes was set at five years after internship, but a longer period was advised. Only general principles then were set forth that might always apply to a developing specialty in a changed and changing order.

LIBERALIZATION

While the original board's thinking and philosophy have prevailed until this time, a changing order did require liberalization of eligibility rules for admission to examination when a number of plans were provided for likely trainee situations. In doing this, the board did not modify its standards of examination. There was the definite minimum time requirement of three years residency discipline and two years in practice, but a number of time grooves, so to speak, were created into which trainees fit according to varying circumstances. These new plans were arranged in recognition of the fact that capable persons might do as well by preparation over a longer period of time with less intensive application to residency training and more to actual practice, wherever that might be. It was also thought that variable preparation plans might be welcomed because of unavailability of suitable residencies and/or because of personal or economic reasons. Moreover, it was believed that such liberalization of time requirements would enable candidates to go on simultaneously with other objectives, such as research and teaching. It was felt that a background of certified capability in the field of internal medicine would strengthen potentialitites for the candidate in whatever field of endeavor he might finally find himself. I am sure that the provision of additional plans for admission to examination was a considerate and wholesome one appreciated by prospective candidates. In all of this, as I remember it, Drs. William McCann, Alex Burgess, and Cecil Watson, past members of the board, were prominently identified.

EXAMINATIONS

In 1948, Dr. Watson, as chairman, addressed this Section on Internal Medicine on "Some Activities and Impacts of the American Board of Internal Medicine." [3] His was a masterly presentation of the subject and, as I see it, left nothing of importance for amendment five years later. It was most revealing in exposition and should have clarified many erroneous impressions with respect to the board's constitution and activities. A good portion of the address was devoted to a clearly phrased description of the multiple choice type of written examination that had recently replaced the essay type. Here, too, in accord with a changing order, there was the need to follow the best psychological and pedagogic opinion and advice of the day. Dr. Watson brought to the situation the benefit of his own experience with this objective and comprehensive type of examination and was energetic in its early implementation. The board quickly appreciated the inherent advantages in this kind of an examination over those of the essay type and was soon convinced of their superior value. The production of a multiple choice examination requires much time, thought, and checking, both before and after the test. The composition of questions may be so affected that the answers will reveal factual knowledge, experience, and ability to reason or analyze as may be required. Good questions so submitted are sharply discriminating. The board has support for the use of this examination in a well-controlled study reported by Cowles and Hubbard who concluded that "Objective test scores correspond much more closely with the long-term evaluation of students in internal medicine by their own instructors than do the essay test grades." [4]

The board, of course, still continues to carry out the second part of the examination at the bedside of the patient, after the examinee has had a reasonable amount of time to obtain historical data and to do physical examinations. This has always been regarded as a clinical or practical examination and is a procedure that time and experience have shown to be helpful and valuable in measuring the qualifications an internist should possess. There is no need of relating the observations that a bedside examiner can make or the conclusions he may derive therefrom, except to say that here approach, poise, ideas, judgment, and consultantship may be quite evident.

---

[2] Kirklin, B. R.: Approved Examining Boards in Medical Specialties: Advisory Board for Medical Specialists: American Board of Internal Medicine, J. A. M. A. **150**: 384 (Sept. 27) 1952.

[3] Watson, C. J.: Some Activities and Impacts of the American Board of Internal Medicine: Chairman's Address, J. A. M. A. **138**: 257 (Sept. 25) 1948.

[4] Cowles, J. C., and Hubbard, J.: A Comparative Study of Essay and Objective Examinations for Medical Students, J. M. Educ. **27**: 14 (May, *part 2*) 1952.

Members of the board and official examiners recently appointed for the first time have due regard for examinees as colleagues in medicine and are well aware of impressions they, in turn, may make on examinees. So it is that they do all they can to allay anxiety and tensions brought by candidates to the occasion, to say nothing of real mental blocking. Unfortunately certification may be his big and immediate objective for various reasons, an objective he must sooner or later learn is a limited one. The examiner needs, at times, to decide whether the "flustered" and "flurried" candidate will after all possess enough "phlegm" in medical emergency and consultation. Happily there are those who are possessed of Oslerian "imperturbability" at the bedside and during the written test as well.

It is interesting to note that the board brings to its job continued discussion, exploration, and analysis of function, which is admittedly not infallible. During the past five years, however, analytical data show an ever-improving testing efficiency. Data also reveal an increasing complement of the written and oral tests and that measurements other than those derived by objective examination are developed at the bedside. The board's deliberations and study still confirm the good judgment of insisting on primary certification in internal medicine before granting approval to competency in the subspecialties of allergy, cardiovascular disease, gastroenterology, and pulmonary disease. There is every reason to believe that these more sharply limited subspecialties should be erected only on the broad base of internal medicine.

CERTIFICATION

It is of interest to know that 29 written and 60 oral examinations have been organized by the board since its inception. The board has passed favorably on the competency of 6,090 internists by means of examination. Originally, 1,945 physicians were specially certified because of qualifications that placed them in adviser and founder groups. This makes a total of 8,035 certified internists to date. In this number are included the hundred or more internists who were certified on the basis of examinations organized and executed for medical officers in the European theatre operation during World War II. The direction of this effort was carried out by Dr. William S. Middleton, then Colonel Middleton, with the assistance of 27 officers, who were diplomates of the board, acting as guest examiners. This distinguished achievement suggests quite clearly that "in spite of the stress and strain of war, the high standards required of successful candidates were steadfastly maintained." [5]

For some years, the board has certified about 700 men a year, and this number has remained constant for the past three years. New applications continue to be made at a fairly constant rate. Thirty-five men, including the present members of the board under Dr. Walter Palmer's chairmanship, have given large amounts of time, sincere effort, and great thought to the project in the course of these 17 years. During much of this time, the board has had the invaluable assistance of its executive secretary-treasurer, Dr. William A. Werrell, and its librarian, Dr. Victor W. Logan.

STANDARDS OF MEDICAL EDUCATION

All of this, I should say, is reminiscent of what happened when, in 1904 and thereafter, the newly created Council of Medical Education joined with other interested bodies to raise the standards of medical education in this country. They were at a critically low ebb, at the time. For this effort, there was available the great publicity medium of Mr. Abraham Flexner's report, after he had investigated the medical schools of the country for the Carnegie Foundation. The undertaking developed gradually by means of conference, study, inspection, exploration, and change in emphasis. The results of that enterprise are apparent today in what has already been accomplished and in the continuing advance of medical education, especially at the undergraduate level.

The same Council of Medical Education, now entrusted with counciling hospitals as well, was called on to study the problem of specialized practice. The outcome of that enterprise is also apparent. Well-organized and well-directed training programs are provided in many hospitals throughout the country. Interest in staff conferences of all types, patient rounds, abstract groups, and lectures is very impressive. Medical meetings at national, regional, and state levels are increasingly well attended year after year. Postgraduate courses are in demand, and enrollments are complete.

Even casual or indifferent exposure to such a wealth of scientific presentations in meeting alone must have some influence on the professional achievement of a great many physicians. More than this, it is especially significant that our 6,090 physicians have found, in this array of training opportunity, enough substance for a demonstration of their fitness as internists. This would suggest that they derive much by postgraduate effort.

The influence of this latter group on the professional and lay communities of their residence, by reason of spirit, leadership, confident approach to patient care and able consultation is well appreciated by those who were on hand before the board's institution. They have not forgotten the unfortunate features of medical practice before that time. It is easy to forget the greater faults in the old when seeking faults in the new.

CONCLUSIONS

It can be said that, as members of this section and as fellows of the American College of Physicians predicted, patient care has been advanced by an organized and functioning board of internal medicine. This occurred because of an improvement in professional ability achieved by a great forwarding in postgraduate education and all that it connotes. The American Board of Internal Medicine has adhered to the common objectives it shares with the other specialty boards and, in particular, has carried the responsibility for the identification of internists who successfully meet the test of examination.

1704 Pine St. (3).

---

[5] Information from the files of the American Board of Internal Medicine, Madison, Wis.

RECURRENCE OF ULCER AFTER VAGOTOMY

Stephen J. Stempien, M.D., Beverly Hills, Calif.
and
Joseph A. Weinberg, M.D., Long Beach, Calif.

Adequate therapy of duodenal ulcer should not only accomplish healing of the ulcer but should prevent its recurrence. Since the advent of vagotomy as a surgical treatment of duodenal ulcer the question of its effect on ulcer recurrence has been raised repeatedly. The literature on this subject is inadequate, and in most of the reports the data are inconclusive. For example, a report by Weber, Goldblum, and Gregg[1] cites three cases of gastric ulceration following vagotomy. No insulin tests were done in two of these cases, and in the third case the insulin test would be considered by us to be inadequate, since the blood sugar level attained was only 58 mg. per hundred cubic centimeters. In addition, this patient had a gastroenterostomy, which in our experience frequently causes false negative results in insulin tests. Dragstedt[2] states that persistence or recurrence of duodenal or gastrojejunal ulcer is almost invariably due to incomplete vagotomy as evidenced by physiological tests. Deaton, Postlethwait, and Bradshaw[3] have shown that, in dogs, persistent negative responses to insulin occur in both the secretory and motor phases for as long as two years after vagotomy.

EVALUATION OF THE INSULIN TEST

Our experience indicates that the insulin test cannot be relied on in all cases. A positive test is a reliable indication of incomplete vagotomy. We consider a response positive when the free hydrochloric acid rises over 20 degrees beyond the highest fasting level. There are many factors other than complete vagus section that produce a negative insulin test.

In the immediate postoperative period there is a refractory state equivalent to a temporary suppression of gastric secretion. Many of our patients have shown negative responses to insulin tests in the early postoperative phase; later, when the trend of the gastric function was toward normal, the same patients had positive results. Gastric retention contributes to false negative results, because retention of mucus, food, and other substances acts as a buffer system for the neutralization of acid stimulated by insulin injection. In marked pyloric obstruction of a patient with active duodenal ulcer, the basal acid values as well as the acid responses to histamine or insulin are often low. They may even be absent in tests made by the conventional titration method. After adequate decompression, the acid values may be high. A similar situation is seen when gastric dilatation occurs as a result of the loss of gastric tone after vagotomy. Regurgitation of alkaline secretion from the duodenum or through the stoma may cause tests to be unreliable. If the technician attempts to obtain all of the secretion of the stomach, additional secretion is obtained from the duodenum and jejunum either through the pylorus or through the stoma. In our experience the gastroenterostomy stoma is more likely to cause disturbing alterations in secretory acid values than pyloroplasty, although changes due to pyloroplasty are seen.

The level of hypoglycemia attained may also affect results of insulin tests. In our opinion the response to insulin is not predictable in every patient. Some patients react markedly to 15 units of insulin administered intravenously and show sharp declines in blood sugar levels as well as high rises in acid values. On the other hand, some patients are refractory to that amount of insulin given intravenously. In these patients the blood sugar level may not fall rapidly or to a very low level, and the acid response may not be as good as expected. When the blood sugar falls in excess of 50% of the basal fasting value, the insulin test is much more likely to be reliable. In some patients the hypoglycemic response is delayed, but in the average patient the reaction occurs promptly and usually is evident within 30 minutes after insulin injection; it is at its height 45 minutes after injection and then gradually tapers off. In some patients, however, the height of the reaction does not occur until one hour after injection, and in a few the height of response may not occur until one and one-half hours after injection. In order to obviate these difficulties, the test should be repeated if it is negative after the conventional one hour of gastric drainage, and gastric drainage as well as blood sugar sampling should be continued for as long as one and one-half hours after the second injection of insulin.

In our experience 60% of patients with duodenal ulcer who have had a gastrectomy or a gastroenterostomy have postoperative gastritis on previously normal mucosa or on previously hypertrophic mucosa. The usual effect of this inflammatory reaction is depression of acid secretion. Thus in some cases the absence of an adequate acid response after such surgical procedures may indicate the presence of gastritis rather than complete vagotomy.

REPORT OF CASES

We have studied the problem of recurrence of ulcer and hemorrhage after vagotomy by reviewing patients who were operated on after vagotomy because of the suspicion of recurrent ulcer or the presence of hemorrhage. In all of these repeat operations surgical indications were considered to be present.

CASE 1.—N. F. H., a 29-year-old man, had a gastroenterostomy elsewhere in 1942. A roentgenogram showed a high gastroenterostomy stoma and a deformed duodenal bulb. Gastroscopic findings were normal, but the gastroenterostomy stoma was not seen. Histamine gastric analysis showed a rise of free hydrochloric acid to 125 degrees. Because the patient had persistent pain that did not respond to medical therapy,

---

From the medical and surgical services, Veterans Administration Hospital, Long Beach, Calif., and the University of California, Los Angeles.

[1] Weber, J.; Goldblum, H. L., and Gregg, L. A.: Gastric Ulceration Following Vagotomy: Report of Three Cases, Gastroenterology **16**: 495 (Oct.) 1950.

[2] Dragstedt, L. R., and Woodward, E. R.: Appraisal of Vagotomy for Peptic Ulcer After Seven Years, J. A. M. A. **145**: 795 (March 17) 1951. Dragstedt, L. R.: The Question of Complete Vagotomy in Man and Experimental Animals, comments, Gastroenterology **12**: 1007 (June) 1949.

[3] Deaton, W. R., Jr.; Postlethwait, R. W., and Bradshaw, H. H.: Gastric Secretion and Motility in Dogs Post-Vagotomy—Two Year Studies, Gastroenterology **17**: 72 (Jan.) 1951.

a transthoracic vagotomy was performed in April, 1948. He returned in July, 1948, complaining of epigastric pain, fullness, and a weight loss of 23 lb. (10.4 kg.). A roentgenogram showed a high gastroenterostomy and gastric retention of an estimated 80% in 24 hours. An insulin test was negative; after injection of 15 units of insulin, the acid values remained at 10 degrees at the 30 and 45 minute periods. The blood sugar level was 27 mg. per hundred cubic centimeters. Gastric resection was done because of the gastric retention, and a stomal ulcer and an intact right vagus nerve were found. Histopathological examination confirmed the surgical findings.

Case 2.—C. G. C., a 46-year-old man, had vagotomy and gastroenterostomy in May, 1947, because of severe repeated hemorrhages from a duodenal ulcer. The insulin test was negative in the immediate postoperative period, indicating that complete vagotomy had been done. The patient returned in March, 1951, because of epigastric pain, vomiting, and hemorrhage. He was again explored surgically, and no ulcer could be seen. The gastroenterostomy was taken down, and pyloroplasty was performed, but no search for vagus fibers was made. The preoperative insulin test was considered to be negative or equivocal, because the rise in free hydrochloric acid after insulin injection was only 10 degrees over fasting levels. The blood sugar level attained was 24 mg. per hundred cubic centimeters after a fasting value of 92 mg. The patient returned in September, 1951, with the complaint of recurrent hemorrhages. Insulin tests were positive. A roentgenogram showed a deformed duodenal bulb with an ulcer crater. A transthoracic operation was performed, and the left vagus nerve was found to be intact. Only the right vagus nerve had been divided at the first operation.

Case 3.—G. R. U., a 34-year-old man, underwent vagotomy and gastroenterostomy in 1948 because of melena and epigastric pain due to duodenal ulcer. The patient returned in July, 1951, complaining of severe, recurrent epigastric pain and a loss of 20 lb. (9.1 kg.) over a period of six months. A roentgenogram revealed jejunal ulcer. The insulin test was positive. A second operation was performed, and the presence of a jejunal ulcer was confirmed. An intact vagus nerve was found and divided; the gastroenterostomy was taken down; and a pyloroplasty was performed. Subsequent pathological examination confirmed the diagnosis of jejunal ulcer as well as the presence of the vagus nerve fiber. Several months after the second operation the insulin test was negative.

Case 4.—W. C., a 46-year-old man, had a vagotomy in December, 1946, because of melena due to a duodenal ulcer. He returned in April, 1948, complaining of epigastric pain. A roentgenogram showed no retention but disclosed a duodenal deformity with crater. An insulin test was positive, with 49 degrees of free hydrochloric acid rise above basal levels. At operation, a large right vagus nerve and one small nerve filament were found. The nerves were divided, and gastroenterostomy was done. Three months after operation the insulin test was negative; however, gastroscopy revealed development of superficial gastritis. This patient has had no evidence of recurrent ulceration.

Case 5.—L. L. P., a 37-year-old man, underwent vagotomy and pyloroplasty in November, 1950, because of duodenal ulcer with obstruction. He returned in February, 1951, complaining of distention, epigastric pain, and hematemesis. The insulin test was positive, showing 23 degrees of free hydrochloric acid rise above fasting basal levels. This occurred despite the fact that the insulin reaction was only slight and the blood sugar drop was not great. A roentgenogram showed an atonic stomach with minimal peristalsis and a deformed duodenal bulb with crater. Surgical exploration revealed a duodenal ulcer penetrating the pancreas. Numerous adhesions at the esophageal hiatus precluded an adequate search for vagal fibers. Subtotal gastrectomy was performed.

Case 6.—J. G. M., a 45-year-old man, had vagotomy and pyloroplasty in September, 1951, because of hemorrhage from a duodenal ulcer. The patient returned in May, 1952, because of severe hemorrhage. He was operated on immediately, without preliminary studies. At operation a duodenal ulcer and an intact vagus nerve were found. The nerve was divided, and a partial gastric resection was performed. Subsequent pathological examination confirmed the presence of a duodenal ulcer as well as an intact vagus nerve.

Case 7.—D. D., a 25-year-old man, had vagotomy and pyloroplasty in March, 1951, because of severe and repeated hemorrhage from a duodenal ulcer. He returned in June, 1952, with another attack of melena. A preoperative insulin test was considered equivocal, the hydrochloric acid rising only 13 degrees one hour after insulin injection. At operation, scarring of the pyloroduodenal segment was seen, with no evidence of active ulceration. One small nerve fiber was found intact at the hiatus. A subtotal gastrectomy was performed, and pathological examination of the resected specimen showed chronic hypertrophic gastritis, submucosal vascular congestion, and petechial mucosal hemorrhages.

Case 8.—W. C. M., a 52-year-old man, underwent vagotomy and pyloroplasty in September, 1947, because of repeated hemorrhages associated with duodenal ulcer. He returned in July, 1948, with recurrence of hemorrhage. An insulin test was positive, and a roentgenogram showed a duodenal deformity with 20% retention at the end of six hours. A transthoracic vagotomy was done, involving the resection of the intact right vagus nerve and three small nerve filaments. The presence of nerve fibers was confirmed histologically.

Case 9.—J. D. R., a 46-year-old man, underwent vagotomy and pyloroplasty in August, 1951, because of recurrent hemorrhages associated with a duodenal ulcer. He returned in November, 1951, complaining of epigastric fulness and pain. A roentgenogram disclosed a markedly deformed duodenal bulb with an ulcer crater and 30% retention of barium at the end of 24 hours. An insulin test showed no rise in free hydrochloric acid after insulin injection; however, undigested food was found in all gastric specimens, which made the insulin test invalid. On surgical exploration, a duodenal ulcer was found penetrating the liver. Because of adhesions, no search was made for additional vagal fibers, but subtotal gastrectomy was performed.

Case 10.—W. H. B., a 53-year-old man, had vagotomy and pyloroplasty in November, 1951, because of recurrent hemorrhages associated with a duodenal ulcer. A deep ulcer crater was found penetrating the pancreas. Both the right and left vagus nerves were identified and divided. Three weeks later, while the patient was still in the hospital, he had a massive hemorrhage. Subtotal gastrectomy was done. An actively bleeding duodenal ulcer was seen, but undivided vagal fibers could not be identified. Insulin tests could not be carried out prior to the second operation because of the patient's serious condition.

Case 11.—J. H. R., a 28-year-old man, had a transthoracic vagotomy in April, 1947, because of recurrent hemorrhages from a duodenal ulcer. He returned in May, 1951, with the complaint of pain and vomiting. An insulin test was positive, and a roentgenogram showed duodenal deformity with an ulcer niche. At surgery, an intact right vagus nerve, a healing duodenal ulcer, and a partial pyloric stenosis were found. The right vagus nerve was divided, and a pyloroplasty was performed. The patient returned in January, 1952, because of tarry stools. Preoperative insulin studies were considered inadvisable because of the evidence of bleeding. A preoperative roentgenogram showed a deformed duodenal bulb but no ulcer crater. The deformity was interpreted as a pseudodiverticulum. At surgery, scarring of the anterior duodenum was found. In addition, the surgeon described what he thought was an ulcer but stated that no active bleeding was seen at this site. A subtotal gastrectomy was done, including resection of the area of suspected ulceration. Subsequent pathological examinations showed that no ulcer was present, and the defect seen at surgery was interpreted as being the result of healing of the pyloroplasty and the duodenal ulcer. The resected specimen showed hypertrophic gastritis with many mucosal hemorrhages.

SUMMARY

Duodenal ulcer remains healed almost without exception after complete vagotomy. We have encountered only one possible exception in over 700 patients who have had vagotomy. In this patient, the ulcer was large and had penetrated the pancreas. Recurrence of hemorrhage after vagotomy may not be caused by recurrence of ulcer but may be caused by mucosal hemorrhages associated with hypertrophic gastritis. Using the insulin test, positive roentgenograms, and surgical exploration as criteria for the presence of ulcer and intact vagal fibers, we believe that recurrence of ulceration is evidence of incomplete vagotomy. A positive insulin test is a reliable sign of incomplete vagotomy. A negative insulin test, however, is not always indicative of complete vagotomy; in many instances false negative tests are found in the presence of incomplete vagotomy. The unequivocal demonstration of a recurrent duodenal or stomal ulcer after vagotomy is the best indication of incomplete vagotomy.

436 N. Roxbury Drive (Dr. Stempien).

HEART DISEASE DISCOVERED ON CHEST MICROFILMS

R. V. Slattery, M.D., Oakland, Calif.

In recent years, the chest microfilm has been used extensively in surveys of large numbers of persons for pulmonary tuberculosis. In some of these surveys, it has been noted that many cardiac, as well as pulmonary, abnormalities were found, and, as a result, it has been recommended that the microfilm be used in surveys for the detection of heart disease. No attempt has been made, however, to determine the accuracy of the microfilm in demonstrating heart disease. It was felt that, before its recommendation for this purpose could be justified, a study of its accuracy should be made.

This is a report of such a study. The incidence of heart disease found on clinical investigation of an unselected group of patients was compared with the incidence of abnormal cardiac silhouettes found in the chest microfilms of the same patients.

METHODS

Beginning July 1, 1948, the chest microfilms of all new patients admitted to the medical and surgical outpatient departments of the University of Chicago clinics were examined in sequence by a member of the department of radiology and by myself. The patients were all adults. Any microfilm in which one or both of the examiners thought the heart or great vessels were of abnormal size or shape was noted as showing evidence of heart disease. These small chest roentgenograms were taken on a Picker 70 mm. minograph machine and were read on a General Electric fluorescent viewer.

The clinical records of all patients whose chest microfilms had been examined were then reviewed. Only patients whose records included a complete history and results of complete physical examination, urinalysis, blood cell count, and a Kahn test were retained in the study. This was considered to be the minimum clinical investigation necessary to ascertain whether a patient had heart disease. Electrocardiograms and 14 by 17 in. chest films had been done whenever the clinic physician attending the patient felt that his investigation warranted them. When present, these were employed as aids in determining whether the patient had heart disease. The size of the heart, in those patients who had 14 by 17 in. films, was measured by comparing the long and short cardiac diameters with the height and weight of the patient.[1] In this system of measurement, there is no definite limit beyond which one can always say the heart is enlarged, but it is considered that most persons with hearts measuring 20% or more over size have cardiomegaly.

The histories of those patients found to have clinical evidence of heart disease were further studied to determine which of them had a history of heart disease and which had symptoms that were compatible with heart disease at the time of examination. The symptoms that were considered compatible with heart disease were enlarged heart, high blood pressure, swelling of the ankles, shortness of breath, chest pain, irregular pulse, palpitation, and fatigue. The incidence of heart disease, as determined from the clinical examination, was then compared with the incidence of abnormal cardiac silhouettes on the microfilms.

RESULTS

The microfilms of 800 patients were reviewed. Of these, 682 patients had sufficient clinical investigation to meet the requirements established for retaining them in the study. Of the 682 patients, 56 had clinical evidence of heart disease. Twenty-five, or approximately 45%, of the patients with clinical evidence of heart disease were detected on the microfilms (table 1). Over half of the rheumatic and hypertensive and 43% of the arteriosclerotic hearts were detected. In the cases of coronary artery disease, only 18.2% of the silhouettes were sufficiently altered to be detectable. This significantly lower incidence of detection of coronary heart disease, as compared to that of the preceding groups, was probably due to a greater tendency for hypertrophy to develop in patients with rheumatic and hypertensive heart disease.

TABLE 1.—*Comparison of the Types of Clinical Heart Disease Detected and Not Detected on Microfilms*

Type of Heart Disease	Clinical Heart Disease, No.	Detected on Microfilms		Not Detected on Microfilms	
		No.	%	No.	%
Rheumatic	7	4	57.1	3	42.9
Hypertensive	21	11	52.4	10	47.6
Coronary	11	2	18.2	9	81.8
Arteriosclerotic	14	6	42.9	8	57.1
Syphilitic	2	1	50.0	1	50.0
Congenital	1	1	100.0	0	0
Total	56	25	44.6	31	55.4

A review of the histories of the 56 patients who had clinical heart disease revealed that 51 either knew they had heart disease or had symptoms compatible with

---

The study reported in this paper was conducted in the Department of Medicine, University of Chicago, Chicago.

[1] Meyer, R. R.: Heart Measurement: A Simplified Method, Radiology 52:691 (May) 1949.

heart disease. This is an incidence of 90%. In 45 of the 56 patients with clinical heart disease, large chest films were part of the investigation and, in 47, electrocardiograms were done. Five of these electrocardiograms were normal, and the remainder were abnormal. Of the 45 patients of whom large chest films were made, 23 had already been discovered on the microfilm and 22 had not (table 2). As would be anticipated, the tendency to detect an abnormal heart on the microfilm coincided roughly with the degree of enlargement of the heart. It is interesting to note, however, that, in seven of the patients not detected, the hearts were more than 20% over size.

In addition to the 25 patients with clinical heart disease detected in the microfilm, there were 12 patients in whom heart disease was suspected on the microfilms but in whom no heart disease was found on clinical study. In this group, both interpreters felt that the heart was abnormal on the microfilm in seven instances, and only one of the interpreters made the diagnosis in the other five instances. In the group of 25 patients in whom heart disease was seen on the small films, there was approximately the same degree of agreement between the two interpreters; 60% of the cardiac abnormalities were detected by both and 40% by one. This tendency for interpretations of roentgenograms to differ with different readers, as well as with a single reader on different occasions, has also been noted when a search is being made for tuberculosis with chest films.[2]

Table 2.—*Comparison of Heart Size, as Measured on Chest Films, Among Patients with Heart Disease Detected and Not Detected on Microfilms*

Heart Size: % Under Size (—) or Over Size (+)	Clinical Heart Disease, No.	Detected on Microfilm		Not Detected on Microfilm	
		No.	%	No.	%
—40% to —21%	2	0	0	2	100
—20% to — 1%	6	0	0	6	100
0 to +20%	14	7	50	7	50
+21% to +40%	11	5	45	6	55
+41% to +60%	10	9	90	1	10
+61% to +80%	2	2	100	0	0
Total	45	23	51	22	49

COMMENT

Schwartz and Berman,[3] in a survey of 10,549 persons in Cincinnati, found 486 (4.6%) abnormal cardiac silhouettes on the small roentgenograms. Among the 207 who were given clinical investigations, 177 (86%) had organic heart disease. Thompson and Jellen[4] obtained clinical investigations of 1,147 persons whose microfilms indicated abnormal hearts, and they found that 68.9% had heart disease. Comparing these studies with mine, in which the confirmation rate was 68%, one can conclude that approximately three-fourths of the persons who, from the small chest films, are suspected to have heart disease will prove to have such on clinical study.

This present investigation differs from any previously reported in that it shows not only how many abnormal hearts are detectable but also how many are undetectable, or missed, in interpretation of the chest microfilm. In the series reported here, 90% of the patients with abnormal hearts had symptoms frequently associated with heart disease, whereas only 45% had abnormal cardiac silhouettes on the small roentgenograms. This would indicate that, in making surveys for heart disease, more persons with abnormal hearts would be found if all those with these symptoms, rather than only those found to have cardiac abnormalities on the microfilms, were subjected to a clinical investigation. Further study would be necessary, however, to determine whether surveys of this type would be practical. These findings make doubtful the value of trying to detect cardiac abnormalities on the microfilms of patients being admitted to a clinic or hospital when they will give a complete history as part of their investigation. It does not seem that the chest microfilm should be recommended for use in large surveys for heart disease since it is capable of detecting less than one-half of the cardiac abnormalities. The time and expense involved in such surveys could hardly be justified in a test that has such a limited degree of detection.

SUMMARY

Among 682 persons having chest microfilms and subsequent clinical investigations, there were 56 who had clinical evidence of heart disease. Only 25 (45%) of the 56 with heart disease were noted as having abnormal hearts on the microfilms. There were, in addition, 12 persons who were thought to have abnormal cardiac silhouettes on the microfilms but who did not prove to have heart disease on clinical study. Because of its low degree of detection, the microfilm is not recommended for use in large surveys for finding persons with heart disease.

298 Grand Ave. (10).

2. Birkelo, C. C., and others: Tuberculosis Case Finding: A Comparison of the Effectiveness of Various Roentgenographic and Photofluorographic Methods, J. A. M. A. **133**: 359 (Feb. 8) 1947.

3. Schwartz, B., and Berman, B.: Incidence of Heart Disease in Mass X-Ray Surveys, J. A. M. A. **149**: 734 (June 21) 1952.

4. Thompson, W. P., and Jellen, J.: Heart Size in Four by Five Inch Films, Am. Rev. Tuberc. **57**: 379 (April) 1948.

Correction of Obesity.—Directions for reduction are so simple that they can be presented by the physician and can be assimilated by an intelligent patient in a few minutes. On the other hand, the practical difficulties of carrying out a consistent and long-continued program of reduction are enormous. . . . There is a widespread impression among mothers, encouraged no doubt by many physicians, that to be big is to be strong and healthy. As a consequence, growing children are supplied not only a sufficient amount but actually an excess of food. Habits of overeating are acquired, and admiration for prowess at the table is instilled. There is still current the belief that overweight offers insurance against the development of tuberculosis. More important is the fact that there are vast numbers of people who are dissatisfied, restless and anxious and who substitute overeating for occupation, for love and for unfulfilled sexual desires. Above all, the chief bane of preventive medicine applies to the obviation of obesity as it does to many other corrective measures. This major impediment is the belief, "It can't happen to me," the psychologic attitude that permits excessive smoking of cigarettes by those who know that such a practice may predispose to cancer of the lung and to serious peripheral vascular disease, that permits excessive drinking of alcohol in spite of the realization of its deteriorating effects and that allows the assumption of extraordinary hazards in driving an automobile or in jaywalking on a crowded avenue by those who are well acquainted with the danger.—D. P. Barr, M.D., Health and Obesity, *New England Journal of Medicine,* June 4, 1953.

TOXIC MANIFESTATIONS IN THE ANTABUSE-ALCOHOL REACTION

STUDY OF ELECTROCARDIOGRAPHIC CHANGES

J. David Markham, M.D.
and
Ebbe C. Hoff, M.D., Ph.D., Richmond, Va.

The tetraethylthiuramdisulfide * (Antabuse)-alcohol reaction is an essential element in the indoctrination of the patient in the use of tetraethylthiuramdisulfide (TETD) as an adjunct in the treatment of chronic alcoholism. Recently this drug was released to the medical profession, although much investigative work on its effects is still in process and the full hazards of its use have not been completely established.

The tetraethylthiuramdisulfide-alcohol reaction represents a controlled physiological response, in which there are measurable alterations in the cardiovascular system affecting pulse rate, cardiac output, cardiac stroke volume, the electrocardiogram, and peripheral circulation. Many of these changes have not been investigated, while others have been described in detail.

The present study was undertaken after an extensive clinical experience with the reaction in 519 patients treated in the inpatient service of the Division of Alcohol Studies and Rehabilitation, Department of Health, Commonwealth of Virginia, at the Medical College of Virginia Hospital. The scope of this report is limited to an analysis of the electrocardiographic changes occurring during the tetraethylthiuramdisulfide-alcohol reaction, correlated with other changes observed at the bedside. Accordingly, electrocardiographic tracings were made at intervals during the reaction on 44 patients, representing 221 electrocardiograms.

METHOD

The patients who underwent the tetraethylthiuramdisulfide-alcohol reaction in this series were regular inpatients of the Division of Alcohol Studies and Rehabilitation who volunteered to take the drug. This was the first reaction for each of them. Those chosen for this study were selected from the medically qualified group solely by their rotation on the admission roster. Each patient was prepared for the reaction by taking tetraethylthiuramdisulfide orally near the end of a 7 to 10 day period of hospitalization, 1.5 gm. the first day, 1.0 gm. the second, 0.5 gm. the third, and 0.5 gm. the fourth. On the fourth day whiskey was administered to produce the tetraethylthiuramdisulfide-alcohol reaction. Only those patients who were considered suitable after careful history, physical examination, and laboratory work-up, including hepatic and renal function tests, electrocardiogram, chest roentgenogram, blood sugar studies, and hemogram, were permitted to take tetraethylthiuramdisulfide.

A wide variation in the priming dose of tetraethylthiuramdisulfide has been reported in the literature, with no clear-cut rationale for selecting any one particular routine. A critical evaluation of tetraethylthiuramdisulfide and alcohol dosages is imperative. An attempt must be made to standardize the reaction if results of reactions in various research centers are to be comparable. The dosages used in this clinic are generally lower than most reported, which lends greater significance to the electrocardiographic changes to be reported here. Observations in this clinic have established that these lower priming dosages of tetraethylthiuramdisulfide achieve the therapeutic goal of the tetraethylthiuramdisulfide-alcohol reaction and reduce the hazard.

Two principles are paramount. First, the reaction is used for recognition purposes only and not as a conditioning or a frightening experience. For this reason repeated reactions are hardly ever desirable. The treatment program aims at comprehensive rehabilitation with psychotherapeutic follow-up for at least a year. Second, critical reactions are undesirable. In a series of 560 tetraethylthiuramdisulfide cases, reported by Hoff and McKeown,[1] many critical reactions were encountered when higher doses of tetraethylthiuramdisulfide were used. Since the dosage was modified according to the above schedule in August, 1951, there has been a striking reduction in critical reactions, although the results of treatment in terms of sobriety continue to remain about the same. In other words, there has been a reduction in the severity of the tetraethylthiuramdisulfide-alcohol reaction without altering the end-results of treatment.

In the present study, arterial blood pressure, pulse, respiration, and control electrocardiogram were recorded immediately before the reaction. The patient was then given 30 ml. of whiskey, approximately 90 proof. In occasional cases, where the reaction was too mild to achieve its purpose of recognition, an additional 10 to 15 ml. of whiskey was given. The blood pressure, pulse, and respiration were recorded every 5 minutes and the electrocardiogram every 15 minutes for one hour, unless the patient's condition dictated otherwise. Subjective and other objective data were also recorded as observed.

RESULTS

The patient group consisted of 44 patients of both sexes who were desirous of undertaking a prolonged course of tetraethylthiuramdisulfide therapy as a part of the total treatment program offered and who were found to be physically and psychologically qualified for the tetraethylthiuramdisulfide-alcohol reaction. They were

---

Ayerst, McKenna & Harrison, Limited, New York, supplied the tetraethylthiuramdisulfide (Antabuse) used in this study.

Physician, Inpatient Service (Dr. Markham), and Medical Director (Dr. Hoff), Division of Alcohol Studies and Rehabilitation, Department of Health, Commonwealth of Virginia; Instructor in Physiology (Dr. Markham) and Professor of Neurological Science (Dr. Hoff), Medical College of Virginia.

* Since this article was edited, the generic name disulfiram was adopted by the Council on Pharmacy and Chemistry for tetraethylthiuramdisulfide.

[1] Hoff, E. C., and McKeown, C. E.: Evaluation of Use of Tetraethylthiuram Disulfide in Treatment of 560 Cases of Alcohol Addiction, Am. J. Psychiat., to be published.

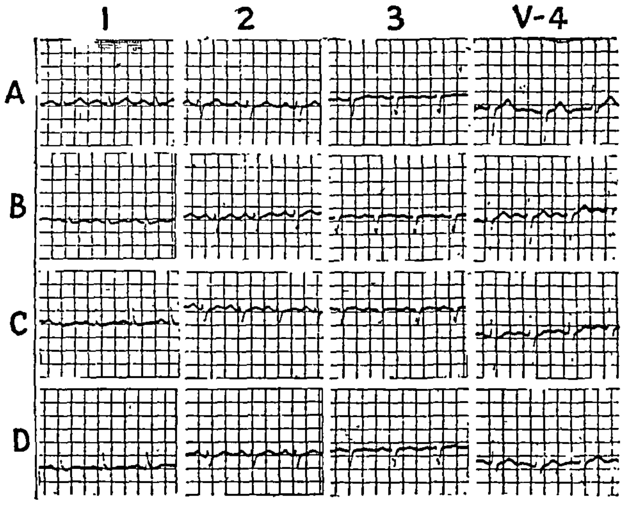
not otherwise selected. The age composition of the group ranged as follows: 20 to 29 years, 5; 30 to 39 years, 19; 40 to 49 years, 17; and 50 to 59 years, 3. There were four women (9% of the total, which roughly corresponded to the admission ratio of women to men), ranging in age from 31 to 48 years.

Major Electrocardiographic Changes in Patients with Antabuse-Alcohol Reaction

Electrocardiographic Changes	No. of Patients	Percentage of Patients
Alteration of T waves in one or more limb leads....	36	82
ST segment deviation in one or more limb leads....	27	61
Lowering of ST segment..............................	23	52
Prolongation of QT interval beyond normal limits for the cardiac rate..............................	18	41
Shortening of PR interval..............................	16	36
T wave changes in lead V-4..............................	12	27
ST segment changes in lead V-4..............................	11	25
Variation in duration of QRS..............................	9	20
Minor disorders of rhythm..............................	8	18
Lengthening of PR interval..............................	3	7
Total patients showing changes..............................	40	91
Total patients showing no changes..............................	4	9
Total..............................	44	100

The reactions experienced by the patients were divided into four categories according to severity: critical, severe, moderate, and mild. There were no critical reactions in this series. There were 7 severe reactions, 12 moderate, and 25 mild.

The major changes observed in the electrocardiograms of these patients during the tetraethylthiuramdisulfide-alcohol reaction are listed in the table. The interpretation of these changes will be discussed later. It is important to note that 40 patients, comprising 91% of the total, showed one or more changes, the majority exhibiting a combination of several. A characteristic pattern of the electrocardiographic changes is illustrated in the figure. In this case a woman, aged 48, showed most of the changes frequently seen during the tetraethylthiuramdisulfide-alcohol reaction. Initial data were: blood pressure 136/88 mm. Hg, pulse 84, and respirations 14; at the height of reaction (30 minutes), blood pressure was 108/56 mm. Hg, pulse 120, and respirations 24.



Electrocardiographic tracing of patient during tetraethylthiuramdisulfide-alcohol reaction. Top line (A) is control tracing before administration of alcohol; second line (B) tracing 15 minutes after ingestion of 30 ml. of whiskey; third line (C) after 30 minutes; and fourth line (D) after 45 minutes, when the reaction was subsiding and the electrocardiogram was returning to normal. The 60 minute tracing (not shown) revealed further return to normal. The changes shown are: shortening of the PR interval, lowering of the ST segment, lowering or flattening of the T waves, and prolongation of the QT interval. Ventricular strain is not evident in this patient.

Seven of the 44 patients experienced a profound drop in blood pressure. In six of these there were major changes in the electrocardiogram, while one showed moderate changes in the electrocardiogram. Twelve of the patients experienced a moderate drop in blood pressure. Of these, five showed major electrocardiographic changes, four showed moderate changes, two slight changes, and one showed no change. Twenty-five patients had a slight or insignificant drop in blood pressure. Of these, 6 showed major electrocardiographic changes, 6 showed moderate changes, 10 showed slight changes, and 3 showed no change. Twenty-four per cent of those with insignificant blood pressure change still exhibited major electrocardiographic changes, and only 12% showed no change at all.

Seven of the patients had a severe reaction requiring supportive measures. All seven showed major electrocardiographic changes. Twelve patients experienced moderate reactions. Of these, six showed major electrocardiographic changes, four had moderate changes, and two had slight changes. Twenty-five patients had mild reactions, but 4 showed major electrocardiographic changes, 7 showed moderate changes, 10 had slight alterations of the electrocardiogram, and 4 showed no change. Therefore, it can be said that a severe reaction will be accompanied by major electrocardiographic changes, but there is a low correlation in the milder reactions between the severity of the reaction and the extent of the electrocardiographic changes.

There was no demonstrable difference between the sexes in the electrocardiographic patterns obtained. All four women demonstrated changes varying from slight to major. Four of the 40 men did not show changes. Any apparent sex difference in degree of change must be considered coincidental, pending analysis of a much larger series containing a much higher number of women.

No significant correlation was found between the electrocardiographic changes observed and the age of the patient. All age groups studied showed electrocardiographic changes during the tetraethylthiuramdisulfide-alcohol reaction. All five of those in the 20 to 29 year age group showed electrocardiographic changes.

COMMENT

Although the literature on tetraethylthiuramdisulfide is large, relatively few reports have dealt with a detailed analysis of the electrocardiographic changes occurring during the reaction. Some reports dismiss the changes lightly in a sentence or two, not analyzing the changes in detail beyond mentioning ST and T wave alterations. A few reports have appeared ascribing serious cardiac complications to the tetraethylthiuramdisulfide-alcohol reaction.

The results reported in our study show electrocardiographic changes of a transitory nature in 91% of cases, and Raby and Lauritzen[2] reported changes in 90% of their series. This may give an exaggerated impression of the cardiac hazards of the reaction. Macklin, Sokolow, Simon, and Schottstaedt [3] reported one case of anteroseptal myocardial infarction following a tetraethylthiuramdisulfide-alcohol reaction. This case has been quoted extensively in the literature on tetraethylthiuramdisulfide, but a critical appraisal of the factors involved has not been made. The case reported by Macklin and coworkers [3] was that of a 45-year-old white man taking tetraethylthiuramdisulfide, who drank ale equivalent to 34 ml. of 90 proof whiskey. He reached the hospital in shock one hour after ingesting the alcohol. The patient was treated by inhalation of Carbogen (95% oxygen with 5% carbon dioxide), parenterally administered caffeine and nikethamide, and elevation of the foot of the bed. In our clinic at present it is standard practice to elevate the foot of the bed; administer large doses of sodium ascorbate, up to 1.5 gm., intravenously, to compensate for the inhibitory effect of tetraethylthiuramdisulfide on oxidative enzymes [4]; give epinephrine (1:1000 solution) in small doses hypodermically, follow with ephedrine intramuscularly or intravenously when indicated; and start an intravenous infusion of glucose in sodium chloride containing parenteral B complex and arterenol if the shock is profound or protracted. Elevating the foot of the bed was the only one of these measures employed in the case reported, and the patient remained in shock longer than three and one-half hours. One cannot, therefore, attribute the unfortunate outcome in this case to a specific effect of the tetraethylthiuramdisulfide-alcohol reaction. Successful antishock measures taken immediately might have prevented the infarction, which can be attributed to prolonged shock, an example of probable infarction without occlusion due to insufficient coronary circulation during the period of shock.

---

[2] Raby, K., and Lauritzen, E.: Circulatory Changes During Antabus-Alcohol Reaction: Preliminary Report, Nord. med. 42: 1693 (Oct. 28) 1949; abstracted, J. A. M. A. 142: 1028 (April 1) 1950.

Since this course of events is a real danger, the practice of deliberately allowing shock to continue when it occurs during the tetraethylthiuramdisulfide-alcohol reaction cannot be condemned too strongly. Regardless of the cause, shock is a hazardous experience for any patient, and it is a mistake to permit it to continue in the false hope of inducing a greater aversion to alcohol because of an extended shock experience. The tetraethylthiuramdisulfide-alcohol reaction must take place under the closest supervision in the hospital rather than in the physician's office so that any untoward reaction can be immediately and adequately treated.

There is one unpredictable, serious danger encountered in the tetraethylthiuramdisulfide-alcohol reaction. This is the delayed secondary reaction, usually occurring one to three hours after the initial reaction appears to have been terminated. The patient rapidly passes into shock without premonitory flushing but sometimes preceded by nausea or vomiting. This complication is fortunately rarely seen, usually in a patient who has required treatment for shock during the initial reaction. Nevertheless, the gravity of this complication is emphasized by Becker and Sugarman,[5] who reported a death in a 49-year-old white man with sudden respiratory arrest four and one-half hours after ingesting 1 oz. (28.35 gm.) of whiskey under controlled observation. The patient exhibited labile blood pressure prior to the reaction, went into deep shock, and was in a state of collapse for over an hour, but apparently recovered. Two and one-half hours after apparent recovery he suddenly ceased to breathe. The only possibly significant autopsy finding was a bilateral diffuse hyperplasia of the adrenal cortex. The dose of tetraethylthiuramdisulfide administered by Becker was in common use at that time, but higher than that now employed in this clinic.

In this study the changes in the electrocardiogram can be divided into three major groups. The commonest were alterations in the T waves and ST segments, primarily in the limb leads. Perhaps the most significant change was a marked tendency towards prolongation of the QT interval. The third major change was alteration in conduction as manifested by change in duration of the PR interval and QRS complex. The importance of these changes will be considered separately. In addition there were minor disorders of rhythm, consisting mainly of sinus arrhythmia usually associated with increased respiratory excursion during the reaction, and occasionally scattered extrasystoles, which were not considered significant.

T wave changes consisted of lowering, flattening, or inversion. Most frequently, all the limb leads showed changes. Changes were observed as well in lead V-4 in 27% of patients. Lead 3 showed the highest incidence of alterations, singly or in combination (85% of all patients). All limb leads were affected in 34%, leads 1 and 3 in 20%, and lead 3 alone in 14%. Other combinations showed much lower incidence. The ST segment changes consisted of a depression of the entire ST segment, without sagging, and were of the pattern usually associated with ventricular strain.[6] The changes observed were not those of acute coronary insufficiency. In keeping with the greater incidence of T wave changes in lead 3, it was noted that there were changes in the ST segment in lead 3 in 40% of cases, either singly or in combination with changes in the other leads. This is contrary to the findings of Raby and Lauritzen,[2] who reported that most changes involved leads 1 and 2. The over-all pattern is best classified as right ventricular strain, which is consistent with the finding by Raby and Lauritzen of a tendency toward disappearance of a left ventricular preponderance when previously present. Further evidence in support of this concept is provided by the case reported by Jones,[7] in which a 29-year-old male patient died suddenly in a delayed secondary reaction following an initial stormy tetraethylthiuramdisulfide-alcohol reaction. Autopsy revealed acute congestive right ventricular failure as the immediate cause of death.

The significance of a prolonged QT interval is receiving attention in the medical literature. Bellet and Finkelstein [8] have reviewed 168 cases in which it was observed and have noted QT prolongation in the following: electrolyte disturbances, myocardial abnormality or disease, myocardial anoxia, combinations of factors as in hypoglycemia or avitaminosis, and effects of drugs such as quinidine. Lepeschkin and Surawicz[9] analyzed techniques of measurement of the QT interval, and the effects of electrolyte disturbance on it.

---

[3] Macklin, E. A.; Sokolow, M.; Simon, A., and Schottstaedt, W.: Cardiovascular Complications of Tetraethylthiuramdisulfide (Antabuse®) Treatment of Alcoholism, J. A. M. A. **146**: 1377 (Aug. 11) 1951.

[4] Larimer, R. C.: Treatment of Alcoholism with Antabuse,® J. A. M. A. **150**: 79 (Sept. 13) 1952. Niblo, G.; Nowinski, W. W., and Roark, D.: Effects of Ascorbic Acid in Antabuse-Alcohol Reactions, Dis. Nerv. System **12**: 340 (Nov.) 1951.

[5] Becker, M. C., and Sugarman, G.: Death Following "Test Drink" of Alcohol in Patients Receiving Antabuse,® J. A. M. A. **149**: 568 (June 7) 1952.

[6] Markham, J. D., and Bloom, N.: Significance of Electrocardiographic Changes in Malignant Hypertension, J. Lab. & Clin. Med. **27**: 1156 (June) 1942.

[7] Jones, R. O.: Death Following Ingestion of Alcohol in Antabuse Treated Patient, Canad. M. A. J. **60**: 609 (June) 1949.

[8] Bellet, S., and Finkelstein, D.: Significance of QT Prolongation in Electrocardiogram: Based on Study of 168 Cases, Am. J. M. Sc. **222**: 263 (Sept.) 1951.

It is felt that the prolongation of the QT interval observed in this series is highly significant and deserves emphasis. The predominant changes seen in the electrocardiogram have shown the pattern of right ventricular strain and not acute coronary insufficiency. This is further borne out by the observation in a few cases that the administration of oxygen did not produce any apparent change in the electrocardiographic configuration. One must, therefore, attribute the prolongation of the QT interval to either or both of two factors: electrolyte imbalance with hypokalemia and hypocalcemia and/or myocardial anoxia. There is evidence to support the assumption that part, if not all, of the observed change is due to a direct toxic effect on the myocardium of one of the metabolites involved in the tetraethylthiuramdisulfide-alcohol reaction. As mentioned previously, the rationale for the use of ascorbic acid in the severe tetraethylthiuramdisulfide-alcohol reaction is to compensate for the enzyme blocking effect of tetraethylthiuramdisulfide. It appeared that the electrocardiogram was favorably affected by ascorbic acid, with tendency to return to normal more quickly, although this was tried in an insufficient number of cases to draw definite conclusions. On the other hand, administration of oxygen did not appear to hasten a return to normal. This would indicate that the prolongation of the QT interval is the result of alteration of the internal metabolism of the myocardium and is not due to a deficiency of oxygen supplied to it.

Consideration must be given to the possible role of the tachycardia itself in producing these changes. Numerous studies of the electrocardiogram during and after exercise and other conditions associated with tachycardia fail to reveal the electrocardiographic pattern seen in the tetraethylthiuramdisulfide-alcohol reaction. Smith[10] noted that, in general, most normal persons, including a group with RS-T depression up to 1 mm., had a shorter QT ratio just after exercise than while resting. Yu, Bruce, Lovejoy, and McDowell[11] noted relative prolongation of QT during exercise, shortening during early recovery, and return to resting value during later recovery. In our analysis QT prolongation has been reported only when the values exceeded the upper limits of normal for heart rate and sex, as standardized by Ashman and Hull. The changes observed in the QT interval cannot be regarded as a function of the tachycardia, since the changes occurred over a wide range of cardiac rate and were not seen in control electrocardiograms with similar tachycardia.

As stated, the third type of change in the electrocardiogram was the tendency in a few cases towards altered conductivity. In most of these, there was shortening of the PR interval and a decrease in the QRS duration. These changes can be explained on the basis of the tachycardia produced during the tetraethylthiuramdisulfide-alcohol reaction. At the same time, they emphasize that the reaction does not adversely affect the conduction system of the heart, which again argues against the concept of coronary insufficiency during the reaction. There is heightened conductivity and sluggish myocardial recovery, implying that, in the tetraethylthiuramdisulfide-alcohol reaction, there is a direct reversible toxic influence on the heart affecting the cardiac muscle alone.

SUMMARY AND CONCLUSIONS

Definite changes have been observed in the electrocardiograms of 91% of 44 patients during the tetraethylthiuramdisulfide-alcohol reaction. The principal changes are lowering, flattening, or inversion of T waves; ST segment depression in one or more leads; and prolongation of the QT interval. The pattern of changes is the same as that seen in ventricular strain, mainly right ventricular strain. The pattern of acute coronary insufficiency has not been observed.

There is strong evidence that some of the changes are due to a direct toxic effect on the myocardium of one or more of the metabolic products of the tetraethylthiuramdisulfide-alcohol reaction. This effect is reversible, subsiding with recovery from the reaction, and also responding to the administration of ascorbic acid, but apparently not to oxygen administration.

The changes in the electrocardiogram indicate that tetraethylthiuramdisulfide should be withheld if there is any suspicion of cardiac abnormality. Every attempt should be made to keep the reaction as mild as possible consistent with sufficient severity for recognition by the patient. Shock should be combatted immediately and vigorously, to avoid superimposing the strain of shock and consequent coronary inadequacy on an already toxic myocardium.

1200 E. Broad St. (19) (Dr. Hoff).

[9] Lepeschkin, E., and Surawicz, B.: Measurement of Q-T Interval of Electrocardiogram, Circulation 6:378 (Sept.) 1952.

[10] Smith, J. E.: Electrocardiographic Response in Exercise Tolerance Tests, J. Aviation Med. 21:470 (Dec.) 1950.

[11] Yu, P. N. G.; Bruce, R. A.; Lovejoy, F. W., Jr., and McDowell, M. E.: Variations in Electrocardiographic Responses During Exercise: Studies of Normal Subjects Under Unusual Stresses and of Patients with Cardiopulmonary Diseases, Circulation 3:368 (March) 1951.

Visceral Aspects of Shoulder Pain.—Pain in the shoulder-neck area may arise from abdominal or thoracic viscera. Pain of abdominal origin usually presents no problem in differentiation from pain from orthopaedic causes. However, pain of thoracic origin, particularly that arising from infarction of the diaphragmatic portion of the lung, must always be considered by the orthopaedist confronted with the problem of shoulder-neck pain. . . . Pain in the supraclavicular fossa and top of the shoulder in a patient in a plaster-of-paris splint or in a patient recently operated upon, should be considered due to pulmonary infarction until proved otherwise. If the diagnosis of infarct is wrong no great harm is done; if the diagnosis is missed the consequence may be fatal. Cardiac pain may also simulate shoulder and cervical pain. . . . However, the differential diagnosis of cardiac pain and that from an orthopaedic condition is usually not difficult. In angina, a history of typical effort pain in the past preceding angina at rest can usually be obtained, and the sudden steady pain of a myocardial infarction is not likely to simulate orthopaedic disease.—J. S. Leland, M.D., Visceral Aspects of Shoulder Pain, *Bulletin of Hospital for Joint Diseases,* April, 1953.

ERYTHROMYCIN FOR INFECTIONS DUE TO MICROCOCCUS PYOGENES

Wallace E. Herrell, M.D., Donald R. Nichols, M.D.
and
William J. Martin, M.D., Rochester, Minn.

One of the most important current problems in the therapy of infectious disease is the management of infections due to strains of Micrococcus pyogenes (Staphylococcus aureus) that are resistant to many antibiotics. We have attempted to evaluate the effectiveness of erythromycin in the treatment of such infections. Although we have used erythromycin in a variety of infections due to organisms susceptible to its action, this report is concerned only with the results obtained with its use in M. pyogenes infection. In most of these cases the organisms were relatively insensitive to penicillin, streptomycin, aureomycin, and oxytetracycline (Terramycin).

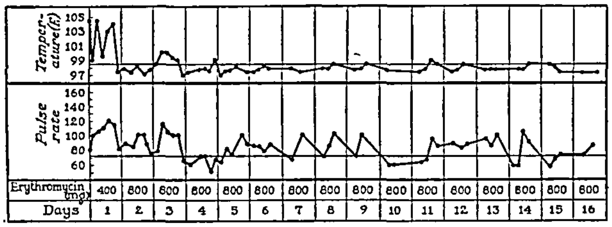
There are indications that in the constant changes that are occurring in the bacterial population many strains of M. pyogenes are naturally or have become resistant to penicillin, streptomycin, aureomycin, and oxytetracycline; for example, it was evident in a report from the Mayo Clinic by Needham and Nichols [1] that 60% of the strains of M. pyogenes that occur among hospital patients were penicillin resistant by 1948. The incidence of streptomycin-resistant strains was 41% during the same year. For a short time during the period that streptomycin was largely omitted in favor of other antibiotics, the incidence decreased slightly; however, it increased again when mixtures of penicillin and streptomycin came into more frequent use. It is evident in the same report that by November, 1951, the proportion of strains resistant to aureomycin and oxytetracycline had reached 36%. More recently, a similar survey [2] revealed that the proportion of strains of M. pyogenes resistant to aureomycin and oxytetracycline is 45%. To date, only rarely has a strain of M. pyogenes been found that is naturally resistant to erythromycin. The number of resistant strains may increase in the future, but, to date, erythromycin remains effective against the majority of such micro-organisms that are encountered.

It has been our practice to employ penicillin, combinations of penicillin and streptomycin, or the broad spectrum antibiotics in the treatment of staphylococcic infections when such infections were due to strains sensitive to these antibiotics. It is evident, however, that a large number of infections cannot be controlled with these agents or combinations of them, and in such cases erythromycin has proved of great value to date. The experience we have had with erythromycin in the treatment of 54 patients forms the basis for this report.

STAPHYLOCOCCIC SEPTICEMIA

The results obtained with erythromycin in staphylococcic septicemia are shown in table 1. Eight of the 54 patients treated had septicemia. There can be little doubt concerning the effectiveness of erythromycin in this type of infection, provided bacterial endocarditis has not developed. It is evident from the results of sensitivity tests given in the table that almost all of the organisms were resistant to penicillin, oxytetracycline, and aureomycin but were reasonably sensitive to erythromycin. It should be pointed out that these sensitivity tests represent inhibition and do not indicate the amounts of the antibiotics that would be required to obtain a bactericidal effect. Furthermore, it will be noted that in some instances the sensitivities shown were greater than 3.2 units per cubic centimeter for penicillin and in other instances greater than 10 units. This variation is due to the fact that during the course of the study the end point of the sensitivity test was changed from 3.2 to 10 units per cubic centimeter. These cases of septicemia are of sufficient interest to warrant a brief summary of each.

Case 1.—A 12-year-old boy had had poliomyelitis of the bulbar type with some paralysis of the upper extremities. To maintain fluid intake, exposure and cannulation of veins of the lower extremities had been necessary in preparation for intravenous feeding. Cellulitis developed, and a septic course followed. Blood cultures were positive for M. pyogenes. Treatment included multiple transfusions and administration of oxytetracycline, aureomycin, penicillin, chloramphenicol, and sulfisoxazole (Gantrisin). The illness had continued for four weeks before the patient was admitted to our hospital service. There were signs of early osteomyelitis in the right elbow. Results of the sensitivity tests done are shown in table 1. The patient's temperature and pulse rate curves are shown in the figure.



Clinical course of the patient in case 1 from the start of erythromycin therapy. Note the disappearance of fever within 48 hours.

Erythromycin was administered in the amounts indicated in table 1 for 15 days. Within 12 hours after this therapy had been started, the temperature was normal and, except for one episode of slight temperature elevation, the patient remained afebrile throughout the course of treatment. The pain and limitation of movement in the elbow promptly subsided, the cellulitis subsided, and the patient made a complete recovery.

Case 2.—A patient had undergone a transurethral operative procedure for removal of a neoplasm of the urinary bladder and had been dismissed from the hospital. The urine had contained M. pyogenes. Shortly after dismissal, extremely severe sepsis developed, and the patient was readmitted to the hospital with a temperature ranging between 104 and 105 F. Blood cultures showed M. pyogenes. The patient was critically ill and was unable to swallow. The organism was inhibited by 0.4 μg of erythromycin per cubic centimeter. The patient received erythromycin by the intravenous route and also by means of a nasal tube. Within 48 hours the organism became

---

From the Division of Medicine, Mayo Clinic.

A large portion of the erythromycin used in these studies was supplied by Eli Lilly & Company, Indianapolis, Abbott Laboratories, North Chicago, Ill., and the Upjohn Company, Kalamazoo, Mich.

[1] Needham, G. M., and Nichols, D. R.: Recent Changes in Sensitivity of Micrococcus Pyogenes to Various Antibiotic Agents, J. Lab. & Clin. Med. 41: 150-156 (Jan.) 1953.

[2] Needham, G. M.: Personal communication to the authors.

resistant to erythromycin, and despite intensive therapy with that antibiotic as well as with penicillin combined with streptomycin, the patient died.

CASE 3.—A patient had undergone mastoidectomy, and on the second postoperative day chills and fever developed. On one occasion, the temperature reached 105 F. The patient had been receiving penicillin and streptomycin. Blood cultures made during this therapy showed M. pyogenes, 20 colonies per cubic centimeter. Sensitivity studies showed that more than 10 units of penicillin per cubic centimeter and 0.78 µg of oxytetracycline and aureomycin per cubic centimeter were required to inhibit the organism. We decided to treat the patient with erythromycin, which inhibited the organism at a concentration of 0.4 µg per cubic centimeter. The amount given and the duration of treatment are shown in table 1. Blood cultures made 24 hours after treatment was begun were negative, and subsequnt cultures remained negative. The patient made an uneventful recovery.

CASE 4.—A patient had undergone transurethral resection for prostatic obstruction and urinary infection due to M. pyogenes. He had received penicillin in adequate dosage during the postoperative period, but chills and fever developed and he became extremely ill. Cultures of the urine and blood were positive for M. pyogenes. Results of sensitivity studies are shown in table 1. The patient received erythromycin by the oral route; within 48 hours after the start of treatment blood cultures became negative, and they remained so throughout his recovery.

TABLE 1.—*Results of Erythromycin Therapy in Septicemia Due to M. Pyogenes*

Case	Age, Yr.	Antibiotic Sensitivity, Per Cc.*	Dose of Erythromycin Mg.	Dose of Erythromycin Interval, Hr.	Dose of Erythromycin Total No. of Doses	Results and Remarks
1	12	P > 3.2 units S > 25 µg. E = 0.4 µg.	200	6	58	Treatment with multiple transfusions, oxytetracycline, aureomycin, penicillin, chloramphenicol, and sulfisoxazole unsuccessful. Complete recovery with erythromycin
2	60	P > 10 units T and A = 0.78 µg. E = 0.4 µg.	250 † 400	6 6	9 8	Received erythromycin both orally and intravenously. Organism became resistant. Therapeutic failure
3	16	P > 10 units T and A = 0.78 µg. E = 0.4 µg.	400 300	6 6	20 16	Uneventful recovery
4	73	P > 10 units T and A > 6.2 µg. E = 0.4 µg.	400	6	36	Organism resistant to penicillin, aureomycin, and oxytetracycline. Uneventful recovery with erythromycin therapy
5	24	P > 3.2 units T and A > 6.2 µg. E = 0.4 µg.	300	6	28	Uneventful recovery
6	77	P > 10 units T and A > 6.2 µg. E = 0.4 µg.	First course 300 Second course 300	6 6	50 83	Blood cultures became sterile and first course discontinued. Recurrence of septicemia, but organism of same sensitivity. Recovered after second course of erythromycin
7	73	P > 3.2 units C = 6.2 µg. T and A > 6.2 µg. E = 0.8 µg.	500	6	36	Organism resistant to all antibiotics except erythromycin. Complete recovery
8	48	P > 3.2 units T and A = 3.1 µg. E = 0.4 µg.	300	6	36	Initial response satisfactory. Blood cultures again became positive. Organism resistant to erythromycin. Therapeutic failure

* P, penicillin; S, streptomycin; E, erythromycin; T, oxytetracycline (Terramycin); A, aureomycin; C, chloramphenicol.
† Administered by intravenous route.

CASE 5.—A patient with a bullous type of dermatitis had fever and had not responded to treatment with oxytetracycline and sulfonamides. On one occasion, his temperature rose to 104 F, at which time blood cultures were positive for M. pyogenes. He was given erythromycin orally, the blood cultures became negative, and he recovered from the septicemia.

CASE 6.—A man, 77 years old, was admitted to the hospital because of a fractured tibia. Urinary obstruction developed, for which catheterization was required. The patient also had urinary infection due to M. pyogenes. After catheterization, the patient became critically ill. Blood and urine cultures were both positive for M. pyogenes. The organism was resistant to penicillin, oxytetracycline, and aureomycin but was sensitive to erythromycin. The patient received 50 doses of erythromycin by the oral route. He made a satisfactory recovery from the septicemia, and the organism was eliminated from the urine. He later underwent transurethral resection, and four or five weeks after the original infection had disappeared, septicemia due to M. pyogenes again developed. The organism was still resistant to the antibiotics mentioned and was sensitive to erythromycin. A second course of 83 doses of erythromycin was given by mouth, and complete recovery occurred. It is interesting to speculate on whether this patient had a recurrence or a reinfection, but, regardless of which was the case, erythromycin was effective in eliminating M. pyogenes from the blood and urine on two separate occasions.

CASE 7.—Sepsis developed in a patient in the period following a transurethral operative procedure. He had received penicillin, sulfisoxazole, and aureomycin, without improvement. Blood cultures revealed M. pyogenes, which was resistant to penicillin, chloramphenicol, oxytetracycline, and aureomycin but was sensitive to erythromycin. The patient received erythromycin orally and made a complete recovery.

CASE 8.—A patient was admitted to the hospital with fever of unknown origin. Blood cultures revealed M. pyogenes. The patient had been treated previously for this illness with penicillin, aureomycin, and oxytetracycline. During such treatment she had, on occasion, been symptomatically improved. A heart murmur was heard, and a presumptive diagnosis of bacterial endocarditis was made. The organism isolated from her blood at the time erythromycin therapy was begun was resistant to penicillin, oxytetracycline, and aureomycin. It was inhibited by 0.4 µg of erythromycin per cubic centimeter of blood. Erythromycin was given orally, and the initial response was satisfactory, but during treatment blood cultures again became positive. The organism at this time was found to be completely resistant to erythromycin, and the patient died from bacterial endocarditis.

There can be little doubt that erythromycin therapy proved lifesaving in six of these eight cases. It was evident in one of the early reports on erythromycin from the Mayo Clinic [3] that bacteria could be made resistant to erythromycin in vitro but that considerable time was required and the development of resistance was comparatively slow. In the two cases reported in which failure occurred (cases 2 and 8), it is apparent that the bacteria became resistant in vivo with extreme rapidity and that this rapid reversal of sensitivity to erythromycin is similar to that that has been seen to occur with streptomycin. Since bacteria at times appear to become rather rapidly resistant to erythromycin and since bactericidal levels of erythromycin in the serum of patients are not easily attainable with the doses usually employed, we would not recommend the routine use of erythromycin in the treatment of bacterial endocarditis due to M. pyogenes.

---

[3] Heilman, F. R.; Herrell, W. E.; Wellman, W. E., and Geraci, J. E.: Some Laboratory and Clinical Observations on a New Antibiotic, Erythromycin (Ilotycin), Proc. Staff Meet., Mayo Clin. 27: 285-304 (July 16) 1952.

A satisfactory or excellent clinical result was obtained in eight cases (about 50%), and a doubtful result or failure occurred in nine. Although failure in a few instances was due to the fact that the organism became resistant to erythromycin, not all of the failures could be explained on this basis. In several instances the organism remained sensitive to erythromycin throughout the course of treatment, which in some instances was prolonged, yet it was never completely eliminated from the wound. This may be due to the fact that, because of the type of infection present, adequate amounts of the antibiotic could not reach the infected surface. It would appear, however, that erythromycin has a place in the treatment of some skeletal and soft tissue infections due to sensitive strains of M. pyogenes in which other antibiotics are relatively ineffective. Despite prolonged treatment in a number of these cases, no serious toxic effects were noted that could be attributed to the use of erythromycin.

Table 2.—*Results of Erythromycin Therapy in Infections of Skeletal System and Soft Tissues Due to M. Pyogenes*

					Dose of Erythromycin			
Case	Age, Yr.	Diagnosis	Source of Culture	Antibiotic Sensitivity, Per Cc.*	Mg.	Interval, Hr.	Total No. of Doses	Results and Remarks
9	67	Postoperative wound infection	Hip socket	P > 3.2 units S > 25 μg. T and A = 0.78 μg. E = 0.4 μg.	First course 300 Second course 300	 6 6	 136 137	Cultures became negative and wound gradually healed. Satisfactory result
10	26	Osteomyelitis, both femurs	Abscess, right buttock	S = 12.5 μg. T and A > 6.2 μg. E = 0.4 μg.	400 300	6 6	36 80	Despite intensive treatment, cultures remained positive. Poor result
11	41	Osteomyelitis, temporal bone	Postoperative head wound	P > 10 units T and A = 1.5 μg. E = 0.8 μg.	300	6	75	Wound gradually healed but response was slow. Organism remained sensitive. Satisfactory result
12	27	Postoperative wound infection	Operative wound	P > 3.2 units T and A > 6.2 μg. E = 0.4 μg.	300	6	34	M. pyogenes eliminated after 10 days' therapy. Wound still contained Escherichia coli, which was treated with oxytetracycline and streptomycin. Satisfactory result
13	3	Postoperative meningitis and wound infection	Craniotomy wound	P > 3.2 units T and A > 6.2 μg. E = 0.8 μg.	100	6	45	M. pyogenes not eliminated from wound. Died
14	49	Infection after craniotomy	Infected scalp wound	P > 3.2 units T and A > 6.2 μg. C = 6.2 μg. N = 0.39 μg. E = 0.8 μg.	400	6	103	Condition of wound improved but M. pyogenes not eliminated. Result doubtful
15	36	Osteomyelitis, thumb	Draining sinus	P > 3.2 units T and A > 6.2 μg. C > 6.2 μg. E = 0.3 μg.	First course 300 Second course 500 Third course 500	 6 6 6	 80 24 ... 24	Marked improvement during first course. Organism reappeared and became relatively resistant. Received 3 courses of erythromycin. Failure
16	21	Severe pyoderma	Skin lesion	P > 3.2 units T and A = 0.78 μg. C > 6.2 μg. E = 0.25 μg.	500 300	6 6	5 60	Marked improvement, infection controlled. Excellent result
17	53	Infection in bone graft	Postoperative wound	P = 10 units T and A = 1.5 μg. E = 0.8 μg.	300	6	40	Excellent clinical result
18	69	Hip infection after reconstructive operation	Postoperative wound	P > 10 units T and A > 6.2 μg. E = 0.8 μg.	300 200	6 6	26 9	Excellent clinical result
19	36	Infection in bone graft, right tibia	Wound infection	P > 3.2 units T and A > 6.2 μg. E = 0.4 μg.	375	6	86	Some clinical improvement but organism never eliminated from wound. Result doubtful
20	36	Postoperative mastoiditis	Mastoid	P > 3.2 units T and A = 1.5 μg. E = 0.8 μg.	400	6	8	Result doubtful. Erythromycin therapy discontinued because of nausea
21	18	Infection in lacerated heel	Heel	P > 3.2 units T and A > 6.2 μg. C = 12.5 μg. E = 0.4 μg.	300	6	20	Erythromycin appeared to have no beneficial effect
22	42	Infection of ulcer	Ulcer	P > 3.2 units T and A > 6.2 μg. E = 0.4 μg.	800	6	235	Value of erythromycin doubtful
23	41	Left hip infection after osteotomy	Wound	P > 3.2 units T and A = 0.78 μg. E = 0.4 μg.	300	6	48	Temporary improvement. Later recurrence of drainage Failure
24	42	Osteomyelitis, rib	Drainage from rib	P > 10 units T and A = 0.78 μg. E = 0.4 μg.	300	6	21	Excellent result. Osteomyelitis healed
25	4	Postoperative wound infection	Drainage from thigh	P > 10 units T and A > 6.2 μg. E = 0.4 μg.	125 † 100	6 4	15 118	Satisfactory clinical response

* P, penicillin; S, streptomycin; T, oxytetracycline (Terramycin); A, aureomycin; E, erythromycin; N, neomycin; C, chloramphenicol.
† Administered by intravenous route.

INFECTIONS OF THE SKELETAL SYSTEM AND SOFT TISSUES

In 17 of the 54 cases included in this report erythromycin was used in the treatment of infections of the skeletal system and soft tissues due to M. pyogenes. In most instances the organism was found to be resistant to the other currently available antibiotics but was reasonably sensitive to erythromycin. The source of culture in these cases, antibiotic sensitivities, doses used, duration of treatment, and results obtained are shown in table 2.

STAPHYLOCOCCIC ILEOCOLITIS

The occurrence of fatal staphylococcic enteritis following the oral use of streptomycin was described in 1948 by Kramer.[4] Zischka [5] has reported that this may also occur following the oral use of sulfaguanidine. Recently, Dearing and Heilman [6] reported the occurrence of ileocolitis owing to the growth of resistant strains of M. pyogenes in the intestinal tract of patients who had received aureomycin or oxytetracycline for preoperative preparation of the bowel. We have treated 14 patients with a condition diagnosed as staphylococcic ileocolitis. Although it is true that in the majority of these patients this condition occurred during aureomycin or oxytetracycline administration for preoperative preparation, it should be emphasized that it can occur in patients hospitalized for other reasons who have not received the broad spectrum antibiotics; for example, 3 (those in cases 31, 35, and 38, table 3) of our 14 hospitalized patients had not received aureomycin or oxytetracycline. A fourth (the patient in case 39, table 3) had not received any antibiotic by the oral route, but staphylococcic ileocolitis developed in him while oxytetracycline was being administered intravenously and streptomycin intramuscularly for septicemia due to a gram-negative organism.

There can be no doubt that a large number of persons among hospital personnel normally harbor strains of M. pyogenes that are resistant to the broad spectrum antibiotics. It is possible that patients admitted to the hospital may acquire these organisms in their throat or nasal passages by contact or through food and that the organism may thereby gain entrance into the intestinal tract. At any rate, persons with or without ileocolitis may harbor resistant strains of M. pyogenes in their stools for reasons other than the fact that they have received broad spectrum antibiotics. The ileocolitis that occurs in the immediate postoperative period is sometimes very severe, and the causative mechanism is not entirely understood. It seems reasonable to assume that the stress of a major surgical procedure, with the probable release of large amounts of adrenocortical hormones, may in some way increase the susceptibility of the patients to invasion by Micrococcus organisms.

Although it is true that this form of ileocolitis may at times be severe, it should rarely, if ever, be fatal if proper treatment is given. Its management is relatively simple, but the possibility of its occurrence must be kept in mind. Smears of stools and cultures should be obtained for any hospitalized patient with signs of ileocolitis, regardless of whether he is being given broad spectrum antibiotics. To date, all the strains encountered in our hospital have been sensitive to erythromycin. If such a patient is receiving broad spectrum antibiotics, their administration is immediately discontinued, and the patient is given erythromycin orally. Within 24 to 72 hours clin-

TABLE 3.—*Results of Erythromycin Therapy in Ileocolitis Due to M. Pyogenes*

Case	Age, Yr.	Culture Source	Antibiotic Sensitivity, Per Cc.*	Dose of Erythromycin			Results and Remarks
				Mg.	Interval, Hr.	Total No. of Doses	
26	45	Stool	P = 0.5 unit T and A > 6.2 µg. E = 0.4 µg.	300	6	32	Diarrhea under control in 24 hr. Recovery
27	56	Stool	Not done	400	6	27	Stool revealed usual flora in 72 hr. Recovery
28	52	Bowel mucosa swab	P > 10 units T and A > 6.2 µg. E = 0.8 µg.	400	6	26	Patient very ill. Complete recovery
29	59	Stool	P > 10 units T and A > 6.2 µg. E = 0.8 µg.	300	6	24	Stool cultures showed return to usual flora. Recovery
30	44	Stool	Not done	400	6	19	Prompt control of fever and diarrhea. Recovery
31	32	Stool	P > 10 units T and A > 6.2 µg. E = 0.4 µg.	400	6	20	Diarrhea subsided in 24 hr. Stool showed return to usual flora. Recovery. Did not receive broad spectrum antibiotics
32	56	Stool and wound	P > 10 units T and A > 6.2 µg. E = 0.8 µg.	300	6	39	Stool showed return to usual flora. Recovery
33	76	Stool and sputum	P > 10 units T and A > 6.2 µg. E = 0.8 µg.	300	6	72	Prompt control of symptoms. Recovery
34	50	Stool and wound	T and A > 6.2 µg. E = 0.2 µg.	300	6	34	M. pyogenes eliminated from stools and abdominal drainage material. Complete recovery
35	63	Stool Urine	P > 0.1 unit T and A = 0.78 µg. E = 0.8 µg. E = 0.4 µg.	300	6	16	Staphylococcic colitis developed in hospital without exposure to broad spectrum antibiotics. Recovery
36	18	Stool	P > 10 units T and A > 6.2 µg. E = 0.8 µg.	300	6	10	Diarrhea subsided. Complete recovery
37	45	Stool	P > 10 units T and A = 0.39 µg. E = 0.4 µg.	400	6	26	Complete recovery
38	66	Stool and bowel mucosa swab	P > 10 units T and A > 6.2 µg. E = 1.6 µg.	400	6	15	Colitis developed in hospital without exposure to broad spectrum antibiotics. Complete and satisfactory response to erythromycin therapy
39	55	Stool	P > 10 units T and A > 6.2 µg. E = 0.4 µg.	300	6	32	Was receiving oxytetracycline intravenously and streptomycin intramuscularly. Colitis developed. Prompt response to erythromycin therapy

* P, penicillin; T, oxytetracycline (Terramycin); A, aureomycin; E, erythromycin.

---

[4] Kramer, I. R. H.: Fatal Staphylococcal Enteritis Developing During Streptomycin Therapy by Mouth, Lancet 2: 646-647 (Oct. 23) 1948.

[5] Zischka, W.: Tödliche Gastroenterokolitis ungewöhnlicher bakterieller Genese bei einem Kind, Wein. klin. Wchnschr. 62: 409-411 (June 9) 1950.

[6] Dearing, W. H., and Heilman, F. R.: Micrococcic (Staphylococcic) Enteritis as a Complication of Antibiotic Therapy: Its Response to Erythromycin, Proc. Staff Meet., Mayo Clin. 28: 121-134 (March 11) 1953.

ical improvement occurs, and a return to the usual flora is found on stool cultures. In our 14 cases oral administration of erythromycin in the doses indicated in table 3 resulted in complete recovery of all the patients. Similar results are expected in the future, provided erythromycin-resistant strains are not encountered.

MICROCOCCI IN COLON CONTENT WITHOUT SYMPTOMS OF INFECTION

It was previously pointed out that patients may harbor M. pyogenes in their colon content without having symptoms of infection. We have had five such patients (table 4). All of these patients had received one of the the broad spectrum antibiotics in preparation for an operation. Routine cultures of material obtained by swabbing the bowel mucosa or cultures of the stool revealed the presence of M. pyogenes. Sensitivity studies were done for only two of the five patients, but in both the organisms were of the type usually seen in such cases. The organisms were not inhibited by 10 units of penicillin per cubic centimeter or by 6.2 μg of oxytetracycline or aureomycin per cubic centimeter. They were sensitive to erythromycin. In all five patients oral administration of 300 or 400 mg. of erythromycin every six hours promptly eliminated M. pyogenes from the stools.

MISCELLANEOUS STAPHYLOCOCCIC INFECTIONS

Ten of our 54 cases were classed as miscellaneous infections. The diagnosis, source of the culture, and other pertinent data are summarized in table 5. There was one example (case 45) of meningitis due to a strain of M. pyogenes that was relatively resistant to penicillin and the broad spectrum antibiotics but that was sensitive to erythromycin. There were two examples (cases 46 and 49) of infections in the urinary tract due to resistant strains of M. pyogenes. The use of erythromycin by the oral route resulted in elimination of this organism from the urine. There were five instances in which a resistant strain of M. pyogenes was found in the nose or throat of persons with acute infections of the nose or throat. In four of these the organism was promptly eliminated and clinical improvement occurred; the fifth improved clinically, but a few micro-organisms were still present in the throat when treatment was discontinued.

Table 4.—*Results of Erythromycin Therapy for M. Pyogenes in Colon Content Without Occurrence of Symptoms*

				Dose of Erythromycin			
Case	Age, Yr.	Culture Source	Antibiotic Sensitivity, Per Cc.*	Mg.	Interval, Hr.	Total No. of Doses	Results and Remarks
40	71	Bowel mucosa swab	Not done	400	6	16	Stool showed prompt return to usual flora, with elimination of M. pyogenes
41	66	Bowel mucosa swab	P > 10 units T and A > 6.2 μg. E = 0.8 μg.	300	6	14	M. pyogenes eliminated from stool
42	31	Stool	Not done	300	6	35	M. pyogenes eliminated from stool
43	55	Stool	Not done	300	6	14	Stool showed return to usual flora, with elimination of M. pyogenes. Later died from metastatic carcinoma
44	56	Bowel mucosa swab	P > 10 units T and A > 6.2 μg. E = 0.8 μg.	400	6	24	Stool showed return to usual flora, with elimination of M. pyogenes

* P, penicillin; T, oxytetracycline (Terramycin); A, aureomycin; E, erythromycin.

Table 5.—*Results of Erythromycin Therapy in Miscellaneous Infections Due to M. Pyogenes*

					Dose of Erythromycin			
Case	Age, Yr.	Diagnosis	Culture Source	Antibiotic Sensitivity, Per Cc.*	Mg.	Interval, Hr.	Total No. of Doses	Results and Remarks
45	66	Meningitis	Spinal fluid	P > 3.2 units T and A = 3.1 μg.	400 500	6 6	31 35	Striking response. Complete recovery
46	78	Urinary infection	Urine	P > 10 units T and A > 6.2 μg. E < 0.2 μg.	300 400	6 6	4 21	M. pyogenes eliminated from urine
47	42	Throat infection	Throat	P > 10 units T and A > 6.2 μg. E = 0.4 μg.	300	6	15	M. pyogenes eliminated from throat and stool
48	5 mo.	Collapsible trachea	Trachea	P > 10 units T and A > 6.2 μg. E = 0.4 μg.	50	12	18	Temperature promptly subsided. M. pyogenes eliminated from sputum
49	51	Urinary infection	Urine	Not done	300	6	20	Urinary infection promptly cleared
50	17 mo.	Cystic disease of pancreas with pneumonitis	Throat	P > 3.2 units T and A > 6.2 μg. E = 0.4 μg.	50	6	65	M. pyogenes eliminated from throat, but died of primary disease
51	17	Pharyngitis	Throat	P > 3.2 units T and A > 6.2 μg. E = 0.8 μg.	375	6	17	M. pyogenes disappeared from throat cultures. Infection cleared
52	43	Purulent rhinitis	Nose	P > 3.2 units A > 6.2 μg. C = 3.1 μg. E = 0.2 μg.	300	6	28	Prompt clinical response. Cultures became negative
53	67	Postoperative empyema	Pleural fluid	P > 10 units T and A > 6.2 μg. E = 0.4 μg.	300	6	16	Excellent response to treatment
54	18	Acute septic tonsillitis	Throat	P = 10 units T and A = 0.78 μg. E = 0.8 μg.	300	6	19	Clinical improvement, but a few organisms still present when treatment discontinued

* P, penicillin; T, oxytetracycline (Terramycin); A, aureomycin; E, erythromycin; C, chloramphenicol.

In a case of postoperative empyema due to a M. pyogenes erythromycin appeared to be effective. The organism was resistant to penicillin, oxytetracycline, and aureomycin but was sensitive to erythromycin. M. pyogenes was isolated from the trachea of a child with a collapsible trachea and pneumonitis. The organism was resistant to penicillin, oxytetracycline, and aureomycin but was sensitive to erythromycin. It was eliminated from the tracheal secretions after treatment with erythromycin.

DOSAGE AND METHODS OF ADMINISTRATION

For the average adult patient, the oral dose of erythromycin that we give is 300 to 400 mg. every six hours. This represents a daily dose of 20 to 25 mg. per kilogram of body weight. Doses in excess of 400 mg. every six hours given orally may cause gastrointestinal irritation, which takes the form of nausea, rarely vomiting, and occasionally loose stools. Preparations of the drug now are available for intravenous administration. This form of therapy is used only in persons who for any reason cannot take the preparation orally. The average adult dose for intravenous administration is 250 mg. dissolved in the buffer solution and given every six or eight hours. The intravenous route should not be used for patients with ileocolitis. If for any reason a patient cannot swallow, the erythromycin can be introduced into the intestinal tract through a gastric tube.

SUMMARY AND CONCLUSIONS

Many strains of Micrococcus pyogenes (Staphylococcus aureus) are naturally or have become resistant to penicillin, streptomycin, aureomycin, and oxytetracycline (Terramycin). In infections due to these resistant strains we have employed erythromycin in an attempt to evaluate the effectiveness of this antibiotic in the treatment of such infections. To date, only rarely has a strain of M. pyogenes been found to be naturally resistant to erythromycin. Only further experience will determine to what degree M. pyogenes may develop resistance to this antibiotic. We have used erythromycin in the treatment of 54 patients with various types of infections due to strains of M. pyogenes that were found to be resistant to the more commonly employed antibiotics.

Erythromycin proved highly effective and in some instances lifesaving in the treatment of six of eight patients with staphylococcic septicemia. In the two cases in which this treatment failed the organism rapidly became resistant to the antibiotic in vivo, and the patients died from bacterial endocarditis. Satisfactory clinical response followed the use of erythromycin in infections of the skeletal system and soft tissues in about half of 17 cases. In some failure was attributable to the development of resistance, but in others failure resulted for other reasons. Erythromycin was successfully used in 14 cases of staphylococcic ileocolitis, and it was effective in eliminating M. pyogenes from the stools of 5 patients who harbored the organism in their intestinal tracts but who had no symptoms. Erythromycin was effective in a variety of miscellaneous infections due to M. pyogenes, including meningitis and throat and urinary tract infections. To date, no serious toxic reactions have been encountered after the use of erythromycin in the amounts employed in this series.

Erythromycin appears to be an effective antibiotic in the treatment of a number of infections due to M. pyogenes. Its widespread routine or indiscriminate use may in time result in the appearance of more resistant strains, but the extent to which this will occur is, at present, a matter for speculation.

GRANULOMA FOLLOWING SWIMMING POOL ABRASION

Rees B. Rees, M.D.
and
James H. Bennett, M.D., San Francisco

Hellerström, of Stockholm, first mentioned the possibility of cutaneous tuberculosis developing in abrasions from public swimming pools. He described six facial lesions, five of which followed abrasions sustained in the same pool.[1] Water and sediment from the pool involved in the sixth case produced tuberculosis in a guinea pig. With material from the infected animal, tubercle bacilli were grown on a special medium. Hellerström's patients were males, aged 14 to 29 years, with no history of tuberculosis. In five pulmonary findings were normal, and in the sixth there were small hilar calcifications. In five the tuberculin reaction was negative before and positive after the injury. The clinical picture was strikingly uniform, with soft reddish-brown papules, pinhead to split pea in size and crusted and coalescent. The initial swimming pool abrasions became covered with epithelium but gave rise to granulomas without a period of perfect healing. Diascopy showed lupus vulgaris nodules. The regional lymph nodes were not enlarged or only slightly so. The lesions appeared three to six weeks after the injury. Histological features were compatible with, but not diagnostic of, lupus vulgaris. There were collections of epithelioid cells, and all but one lesion showed giant cells of the Langhan type. Acid-fast bacilli were found in one case, and these were few. Cultures and guinea pig inoculations yielded no organisms. Treatment included ultraviolet light baths, Finsen lamp exposures, calciferol by mouth, and (in one case) *p*-aminosalicylic acid. These lesions healed in three to nine months.

Hellerström believed that a high degree of allergy developed rapidly in these nontuberculous persons because

---

From the Department of Medicine (Subdepartment of Dermatology), University of California School of Medicine.

Read before the Section on Dermatology and Syphilology at the 102nd Annual Session of the American Medical Association, New York, June 4, 1953.

Case 7 was contributed by Dr. Normal Epstein, case 8 by Dr. Patrick Butler, and case 9 by Dr. Melvin Black. Dr. Ellis Sox, Director of Public Health in San Francisco, cooperated in this study.

[1] Hellerström, S.: Collected Cases of Inoculation Lupus Vulgaris, Acta dermat.-venereol. 31: 194-211, 1951.

of the superficial nature of the inoculation, avoiding the traditionally violent primary tuberculous complex of the skin, with ulceration, destruction, and regional lymph node involvement. Lupus vulgaris occurs in persons possessing some degree of allergy or immunity to the tubercle bacillus. The absence or scarcity of tubercle bacilli suggests the importance of an immunobiological factor.

Sulzberger and Baer,[2] in commenting on Hellerström's report, described the case of a young man in New York in whom small groups of lupus vulgaris nodules developed on the bridge of his nose. Hellerström had seen the patient and elicited a history of an abrasion on the nose incurred in a dive into a swimming pool. Tolmach and Frank,[3] in an intensive study, found no tubercle bacilli or silica.

Cleveland,[4] of Vancouver, reported four cases of possible primary tuberculous infections of the skin, which complicated abrasions produced in a public swimming pool. Clinical and histological evidence suggested tuberculosis of the skin in each, although no acid-fast bacilli were found. Two of his patients had negative results in tuberculin tests, and two were not tested. Histological examination showed tuberculoid changes in three lesions, but the fourth patient had only a diffuse granulomatous structure, with abundant lymphocytes and giant cells. These lesions responded to roentgen therapy within three to five months, although destruction with solid carbon dioxide was necessary for residual lesions in one case. Williams found four more cases from the same pool. Cleveland has an open mind regarding etiology, in view of the lack of definite proof that the lesions were due to local inoculation with tubercle bacilli.[5]

Shaw [6] saw 10 or 12 patients with granulomatous lesions on the knee, elbow, or nose, all of whom sustained abrasions in a swimming pool in Seattle. He concluded that the lesions were not tuberculous because there was no laboratory proof and because they all healed within a few months. Sulzberger and Baer [2] believe that this condition should be recognized as a syndrome. There is considerable difference of opinion regarding etiology. Baer has pointed out the possibility of smegma bacilli (which resemble tubercle bacilli) being present in swimming pools in large numbers and causing tuberculoid structures. Szymanski inoculated eight persons with smegma bacilli. In three lesions developed that had a tuberculoid architecture 14 to 30 days afterwards.

Tolmach [3] suggested that silicates used as purifiers in swimming pools might cause granulomas. More recently Brück [7] reported inoculation lupus in a man, aged 23 years, that developed after a swimming pool abrasion. Tubercle bacilli of the human type were cultured from the lesion and subsequently produced tuberculosis in guinea pigs. Brück believes that two different types of infections may result from swimming pool injuries: inoculation lupus vulgaris and so-called mycobacteriosis balnearea, as reported by Nordén and Linell [8] and Zettergren.[9] Nordén and Linell concluded that in the more than 80 cases (first observed by Herlitz [10] in Örebro, Sweden) Koch's bacillus was not responsible. They believed that the infections were due to a type of Mycobacterium that was different biologically from Myco. tuberculosis. In practically every one of the Örebro cases the elbow was the site of injury. The lesion commenced as a papule that ulcerated and then healed spontaneously after 6 to 24 months. Nordén and Linell succeeded in demonstrating Myobacterium micro-organisms not only in the ulcers but in the water and on the walls of the pool. Cement from the pool wall rubbed into the skin of a rabbit produced tissue changes similar to those in the human lesions. In some preparations, a tuberculoid structure was observed, sometimes with central fibrinoid necrosis. Staining by the Gram and Ziehl-Neelsen methods revealed no organisms. In cultures, however, there were acid-fast organisms indistinguishable from tubercle bacilli. Guinea pig inoculations were nonproductive, but intraperitoneal injections into mice resulted in ulcerations along the tail and swellings and ulcerations of the feet that were filled with acid-fast bacilli.

Zettergren observed six skin lesions following swimming pool injuries. They were similar clinically to those described by Nordén and Linell. Attempts at demonstrating tubercle bacilli were unsuccessful. Zettergren felt that the causative agent was probably Myco. marinum, or a closely related species. It should be emphasized that the lesions reported by Hellerström were clinically those of lupus vulgaris and that they occurred on the nose. In Nordén and Linell's cases, and in Zettergren's, the lesions were on the elbow and were ulcerated. Hellerström [11] now believes, with Brück, that there are two types of swimming pool infections. One is inoculation lupus, and the other is the ulcerative type of lesion on the elbow, presumably caused by Myco. marinum.

The question of silica granuloma deserves special attention. This possibility must be ruled out in postabrasion skin granulomas generally.[12] These lesions were originally described by Shattuck in 1916, and the literature up to March, 1950, plus further case studies have been reviewed by Sommerville and Milne.[13] These lesions are reddish, rather soft papules or tumors that clinically are suggestive of cutaneous sarcoidosis. They may follow abrasions, especially those acquired on sandy walks or roads or from sandblasting, but their appearance usually is delayed for months or years after injury. Histologically, there is a sarcoid-like reaction with clusters of epithelioid cells, giant cells, and perhaps even amorphous crystalline particles in routinely stained sections. Under polarized light, however, one sees angular colorless particles of silica (silicon dioxide), which are highly refractile. Silicon is a dark gray, opaque, and needle-like crystalline material; at times it may have octahedral platelets. It does not occur free in nature; it is found as silica (quartz and sandstone) or as silicates (feldspar [orthoclase, kaolinite, or anorthite]). Evans[15] pointed out that silica is a "fibrosive" material and that Carborundum is not. Mica is a symmetrical silicate known to be benign in tissues. The pathogenesis of silica granuloma is very much like that of silicosis of the lungs.

---

[2] The 1951 Year Book of Dermatology and Syphilology, Sulzberger, M. B., and Baer, R. L., editors, Chicago, The Year Book Publishers, 1951, p. 331.

[3] Tolmach, J. A., and Frank, S. B.: Granuloma of Skin with Tubercle Formation Following Swimming Pool Injury, J. A. M. A. **151**: 724-726 (Feb. 28) 1953.

[4] Cleveland, D. E. H.: Possible Tuberculous Skin Infection from a Swimming Pool: Report of 4 Cases, Acta dermat.-venereol. **31**: 147-152, 1951.

[5] Cleveland, D. E. H.: Personal communication to the authors.

[6] Shaw, J.: Personal communication to the authors.

[7] Brück, C.: Is There a Possibility of Tuberculous Infection Through Injuries Sustained in Swimming Pools? Acta dermat.-venereol. **32**: 443-448, 1952.

[8] Nordén, Å., and Linell, F.: A New Type of Pathogenic Mycobacterium, Nature **168**: 826 (Nov. 10) 1951.

[9] Zettergren, L.: Specifik hudaffektion i anslutning till bad i simbassäng mycobacteriosis belnearea: Preliminärt meddelande, Svenska läk. **49**: 25-33 (Jan. 5) 1952.

[10] Herlitz, S.: Paper read at the meeting of the Swedish Dermatologic Society, Örebro, Sweden, May 19, 1951.

[11] Hellerström, S.: Water-Borne Tuberculous and Similar Infections of the Skin in Swimming Pools, Acta dermat.-venereol. **32**: 449-461, 1952.

[12] Ebert, M. H.; Leaf, V., and Barski, S.: Tuberculosis Cutis? Sarcoid? A. M. A. Arch. Dermat. & Syph. **64**: 95-96 (July) 1951. Ginsburg, J. E., and Becker, L. A.: Silicon Granuloma of Skin Due to Traumatic Sand Inoculation, J. A. M. A. **147**: 751-753 (Oct. 20) 1951.

[13] Sommerville, J., and Milne, J. A.: Pseudo-Tuberculoma Silicoticum: Form of Cutaneous "Sarcoid," Brit. J. Dermat. **62**: 105-108 (March) 1950.

REPORT OF CASES

Nine cases in which a clinical diagnosis of tuberculosis verrucosa cutis was made are herein reported. The same pool was used by all patients except the one in case 6. In all cases except cases 7 and 8 examination of serial tissue sections stained by the Ziehl-Neelsen and Hotchkiss McManus techniques, and under the polariscope showed no tubercle bacilli, deep fungi, or silica. When roentgen therapy was given, the factors were 76 kv., 5 ma., 8 in. target-skin distance, no filtration, half-value layer, 0.75 mm. Al.

Case 1.—A 20-year-old man abraded his left knee in 1950. The abrasion healed over but became warty and granulomatous. A tuberculin patch test in August, 1952, gave positive results. Histological changes were nonspecific, with small round cell masses. The lesion was given 600 r in divided doses. Response was slow. On Oct. 27, 1952, isoniazid in a dose of 150 mg. daily by mouth was prescribed (his weight was 130 lb. [59 kg.]). After nine days the lesion healed. The patient then struck the knee while doing acrobatic dancing, and one small granulomatous papule reappeared. He was again treated with isoniazid, and the lesion healed.

Case 2.—A 13-year-old schoolgirl abraded both knees in March, 1951. When she was seen six or seven months after the injury, there was a warty, granulomatous, reddish, superficially scaling lesion on the left knee, 3 by 3 cm. in diameter. A tuberculin patch test gave no reaction after 48 hours. Histological examination showed pseudoepitheliomatous hyperplasia, rather sparse collections of small round cells, some tubercle formation, but no giant cells. The patient was given 975 r in divided doses and 100,000 units of calciferol by mouth in two separate courses of a month each, without response. On Nov. 6, 1952, she began taking isoniazid, 150 mg. daily by mouth, which promptly healed the lesion. One small area recurred two months later and was removed electrosurgically.

Case 3.—An 11-year-old schoolboy abraded his left knee. When he was seen four months later there was a 3 by 3 cm. granulomatous, dusky red and scaly lesion. A tuberculin patch test was positive. Histological examination showed pseudoepitheliomatous hyperplasia, dense collections of small round and epithelioid cells, no definite tubercle formation, no giant cells, and no caseation necrosis. A roentgenogram of the chest showed no evidence of tuberculosis. The lesion was given 775 r in divided doses, but it did not respond. Isoniazid, 150 mg. daily for one month, was not helpful.

Case 4.—An 8-year-old schoolgirl abraded her left knee in the summer of 1951. The abrasion never healed entirely, and thickened, dark reddish scaly lesions developed at the site. Tuberculin test was negative five years before and negative six months after the injury. In September, 1951, she was found to have three separate granulomatous lesions, one of them 2 by 2 cm. in size and the others 0.5 cm. in diameter. Histological examination showed a nonspecific granuloma without definite tubercle or giant cell formation. The lesions were given 1,250 r in divided doses. They healed within six months. The patient also took 100,000 units of calciferol daily by mouth for one month.

Case 5.—An 8-year-old schoolboy abraded his left knee on a schoolground in the summer of 1951 and, while the lesion was still denuded, went swimming. The denuded area failed to heal entirely, giving rise to warty, granulomatous and scaly papules 2 by 2 cm. in diameter. A tuberculin patch test performed in May, 1952, gave a positive reaction. Histological examinations showed pseudoepitheliomatous hyperplasia, many small round cells in dense clusters, interspersed with some polymorphonuclear leukocytes, collections of epithelioid cells to form large tubercles, and numerous giant cells. The lesion was given 750 r in divided doses and healed entirely within five months.

Case 6.—A 17-year-old schoolboy abraded his left knee during the summer of 1951. The abrasion became covered with epithelium but immediately gave rise to granulomatous, dusky red, scaly lesions in an area 3 by 3 cm. in size. Histological examination showed pseudoepitheliomatous hyperplasia, small round cells, and epithelioid cells that formed tubercles; there were a number of Langhan's giant cells. A tuberculin patch test was positive. The lesion healed, with the exception of one papule 1 cm. in diameter, after the administration of 550 r in divided doses. For the residual lesion, isoniazid was prescribed in a dose of 150 mg. daily by mouth. The final outcome is not yet known.

Case 7.—A 13-year-old schoolboy was seen on Jan. 11, 1952, with a reddened, warty and scaly growth, 1.3 by 1.3 cm. in size, over the knuckle of his right index finger, of seven months' duration. He had scratched the area on the side of a public swimming pool. An intradermal tuberculin test gave a strong reaction. Roentgenographic examination of the lungs on Feb. 13, 1952, showed a small area of increased density at the right base and probable mediastinal adenopathy. Histological examination showed tremendously thickened epidermis and a small acute ulceration superficially. Deeper, there was a granulomatous inflammatory reaction with distinct small tubercles, many Langhan's giant cells, and a suggestion of caseation. Acid fuchsin stains did not reveal organisms, and the lesions did not suggest sarcoid. There were no foreign body particles. He was given streptomycin by injection and *p*-aminosalicylic acid by mouth. The lesion shrank somewhat but was still present on Dec. 31, 1952. It was then excised, and biopsy material was injected intraperitoneally into two mice. No abnormalities resulted.

Case 8.—A 16-year-old schoolgirl abraded the front of her right ankle in October, 1951. This abrasion failed to heal entirely. A papular, reddish, crusted lesion 1.5 by 2 cm. developed. With crust removed, the surface was warty and granular. "Apple jelly" nodules were not evident on diascopic pressure. Direct microscopic examination of scales from the lesion, using potassium hydroxide, showed no evidence of fungus infection. Biopsy showed moderate hyperkeratosis and parakeratosis covering a marked acanthosis and spongiosis. Papillary capillaries were dilated and surrounded by dense lymphocytic infiltration. In one capillary body there was a group of epithelioid cells, surrounded by an intense zone of lymphocytic infiltration. At one end of the section there were numerous abscesses of polymorphonuclear leukocytes. Acid fuchsin stain showed no tubercle bacilli. The histological picture was compatible with tuberculosis verrucosa cutis. An intradermal tuberculin test gave a positive reaction on Feb. 23, 1952. Roentgen examination of the chest showed no abnormalities. In March, 1952, the lesion was destroyed by electrosurgery. Formation of a thick scar followed, but the scar responded to roentgen therapy.

Case 9.—A 20-year-old man abraded his left knee in a San Francisco pool in December, 1951. A 7 by 3 cm. granulomatous plaque developed and persisted. Erythema nodosum developed on both legs. This, however, cleared spontaneously after a number of weeks. A chest roentgenogram showed no evidence of tuberculosis. Results of tuberculin tests are not known. Histologically there were groups of closely packed tubercles and macrophages accompanied by multinucleated giant cells of the Langhan's type, with surrounding collars of

---

14. Deleted on proof.

15. Evans, S. M.: Tissue Responses to Physical Forces: I. The Pathogenesis of Silicosis: A Preliminary Report, J. Indust. Hyg. & Toxicol. 30: 353-357 (Nov.) 1948.

lymphocytes, plasma cells, and histiocytes. Acid-fast bacilli and fungi were not demonstrated by special strains; cultures presented no growth. Adjacent to the markedly granulomatous process there was much scarring with perifollicular and periglandular fibrosis with deposition of brown pigment, which took the stain for iron. Dr. Black raised the question of a granulomatous reaction to some constituent of the tile or grout in the swimming pool and suggested the advisability of chemical analyses of these materials and perhaps experiments with animals to determine if some chemical like beryllium were present. The entire lesion was excised on Feb. 13, 1953.

No history of tuberculosis was given in any of the cases, and tuberculin tests were performed prior to the injury only in cases 4 and 8. In case 4 a test done four years previously was negative. In case 8 there were prior positive tuberculin tests but no findings of tuberculosis and no family history of it. A pulmonic density in case 7 was the only evidence of pulmonary tuberculosis. Guinea pig inoculation was negative in cases 1, 2, 3, and 7 and was not done in the other cases.

Two additional patients with lesions that were clinically diagnosed as tuberculosis verrucosa cutis and that did not follow swimming pool abrasions were studied, but no tubercle bacilli, deep fungi, or silica were found. Guinea pigs were inoculated in these two cases.

COMMENT

The lesions in these patients differ sharply in one respect from those found in the patients of Hellerström, Cleveland, Brück, and others. They were typical clinically of tuberculosis verrucosa cutis, whereas previously reported lesions were of the lupus vulgaris type. Lupus vulgaris is a rarity in California. Hellerström stresses the fact that his cases were not those or ordinary lupus vulgaris but seemed to be the result of superficial inoculation of the skin with the tubercle bacillus, bypassing a violent primary tuberculous complex of the skin. He assumed that these lesions pass through a fleeting phase of a primary complex and rapidly develop typical nodules of lupus vulgaris. The very superficial nature of the inoculation presumably allowed this sequence of events to occur. Our patients belonged to the age group (8-20 years) in which one would not expect to see the reinoculation type of tuberculosis of the skin, such as verruca necrogenica or tuberculosis verrucosa cutis. There is no way of showing that these lesions are not the reinoculation type of tuberculosis, and yet, if Hellerström's thesis is correct, it is possible that the superficial nature of the inoculation may have produced some degree of resistance within the host, without the development of a primary complex, and may have given rise to a reinoculation type of cutaneous tuberculosis that is more commonly seen in California, namely, tuberculosis verrucosa cutis.

Attempts were made to establish an etiological diagnosis. No tubercle bacilli were found in any of the histological specimens, in spite of examination of serial sections stained with acid fuchsin. In four patients whose lesions were biopsied for guinea pig inoculation, no evidence of tuberculous infection was found. Sulzberger and Goodman [16] have shown that it may be very difficult to demonstrate tubercle bacilli in clinically typical lesions of cutaneous tuberculosis. Deep fungus infections, notably blastomycosis, were ruled out by examination of serial sections stained with the Hotchkiss McManus technique. Silica granuloma or a granuloma from silicates used as purifiers in swimming pools has been eliminated by examination of serial sections under the polariscope. In addition, the clinical history and course is radically different in silica granuloma. The suggestion by Sulzberger and Baer that these lesions might be the result of inoculation with smegma bacilli, which resemble tubercle bacilli, has not been proved or disproved. The possibility that smegma bacilli may be present in swimming pool water and/or sediment cannot be denied. Szymanski has produced tuberculoid lesions by inoculating smegma bacilli into the skin. The response to treatment is somewhat suggestive in regard to etiology. The fact that the lesions responded rather rapidly, although incompletely, in two patients treated with isoniazid is suggestive of a tuberculous nature.[17] It is known that both tuberculosis verrucosa cutis and verruca necrogenica may heal spontaneously. Our patients' lesions tended to heal within a period of six months, under the influence of x-ray therapy, calciferol by mouth, or isoniazid.

Valuable indirect evidence as to etiology would result if tubercle bacilli could be cultured, using the water or sediment from the public pool frequented by most of these patients. The San Francisco Department of Public Health has done such studies, without recovering organisms. It is apparent from the reports of Hellerström and others that viable tubercle bacilli can be found in public plunges. It has been shown that resurfacing the pools with smooth tile and raising the chlorine content will eliminate the incidence of these lesions. Cleveland has suggested that swimming pools might be a source of more serious tuberculous infection if they are capable of producing lesions of the type mentioned in this study. This cannot be denied. On the basis of clinical experience, however, it would appear that, in lesions resulting from swimming pool abrasions, changes are benign and somewhat self-limited in nature. Furthermore, they are relatively uncommon. Twenty-six to 28 cases have been recognized on the North American continent.

SUMMARY

Attention is drawn to the possibility of tuberculous infections following abrasions in swimming pools by Hellerström of Sweden. He presented the first case of "swimmers' lupus" in 1932. In 1951 he reported six such cases.

This study includes seven children and two young adults. Six of these persons had clinical tuberculosis verrucosa cutis on the left knee following abrasions sustained in swimming pools. The site of injury in the seventh case was the right index finger and in the eighth, the front of an ankle. Eight patients had been in the same pool. Tubercle bacilli were not found, although serial sections were examined. Most of the patients had positive tuberculin tests following the injuries. Silica granuloma was ruled out by examination of serial sections with the polariscope and deep mycotic infections by Hotchkiss McManus stains. Guinea pig inoculations in four cases failed to demonstrate tubercle bacilli. Most lesions responded within three to six months, either with conservative roentgen therapy, calciferol, or, in two resistant cases, with isoniazid, which promptly cleared the lesions.

---

[16] Sulzberger, M. B., and Goodman, J.: Tuberculoderms, M. Clin. North America 20: 995-1007 (Nov.) 1936.

[17] Chemotherapy and Intracellular Tubercle Bacilli, editorial, J. A. M. A. 151: 47 (Jan. 3) 1953.

No causative agent was demonstrable in any of these cases. There is a need for emphasizing the existence of the problem. It is of public health importance. As suggested by Sulzberger and Baer, it may represent a syndrome. Some agent other than all the possible ones mentioned by various authors may be at fault. It need not necessarily be microbial in nature. The response to isoniazid may not necessarily signify a tuberculous etiology. The most useful suggestion in regard to elimination of the problem appears to be that of Hellerström, namely, the resurfacing of swimming pools with smooth tile. If this does not deal with the causative agent in some specific way, it at least minimizes the possibility of producing abrasions.

384 Post St. (Dr. Rees).

LUMBOSACRAL JUNCTION

ROENTGENOGRAPHIC COMPARISON OF PATIENTS WITH AND WITHOUT BACKACHES

Clarence A. Splithoff, M.D., Oakland, Calif.

Chronic lumbar backache continues to be a source of difficulty, both to the patient and to the physician called on for treatment. There is hardly a person who has not, at some time, experienced low backache. The vast majority of the backaches are transitory and will subside with little or no treatment. There are, however, many instances in which these bothersome backaches become chronic and tax the ingenuity and resourcefulness of the physician.

In order to determine the relationship between the roentgenographic findings and chronic lumbar backache, a study was made comparing 100 patients with backache and an equal number of persons not bothered by backache. The group of persons with chronic backache included the first hundred who applied for treatment at the New York Orthopedic Dispensary and Hospital in the year chosen for study. They were not screened except that those persons with obvious pathological changes, such as herniation of an intervertebral disk, tuberculosis, or other disease, were not included.

The 100 normal persons were unselected; they were at least 40 years of age; and they had never consulted a physician or been disabled by chronic backache. It became obvious very early in the study that it would be impossible to establish a group of so-called normal persons who could honestly state that they had never experienced an occasional backache; therefore, anyone who could say that he had never received medical attention for or been disabled by backache was accepted as normal for the study. This group included friends or relatives of patients or those who came for treatment of some condition entirely unrelated to the back.

The routine views used for the study were anterior-posterior and lateral roentgenograms of the lumbosacral spine, and a 45 degree cephalad-oblique view was utilized to visualize the fifth lumbar intervertebral disk and facets. The lateral view was taken with the legs extended in order to obtain a true measurement of the angle of the sacrum. The anomalies present, the position of the facets, the width of the fifth lumbar intervertebral disk, and the angle of the sacrum were recorded in each of the films.

RESULTS

The incidence of congenital anomalies and degenerative arthritis is summarized in table 1. Scoliosis or tilt and posterior displacement of the fifth lumbar vertebra are included here for completeness of detail. Except for scoliosis or tilt, it should be noted that congenital anomalies and degenerative arthritis were present in approximately the same percentage of patients with and without backache.

Transitional Vertebrae.—Transitional vertebrae were present equally in both groups. A vertebra was not considered transitional unless the enlargement of the transverse process was quite distinctive.[1] Simple butterfly enlargement of the presacral transverse process was not considered transitional. No attempt was made to determine whether the transition represented sacralization or lumbarization because our films did not always include the upper lumbar vertebrae. The transition could include enlargement of either one or both lateral masses of the sacral type progressing to pseudoarthrosis or in some cases to actual fusion to the sacral wing.

TABLE 1.—*Incidence of Changes Observed at Lumbosacral Junction as Shown by Roentgenograms of 100 Persons With and 100 Persons Without Backache*

Type of Change	Normal	Backache
Transitional vertebra	10	10
Spondylolisthesis	3	2
Spina bifida occulta	6	4
Posterior displacement of fifth lumbar vertebra	14	16
Scoliosis or tilt, lumbar spine	9	16
Osteoarthritis	22	26

Spondylolisthesis.—Spondylolisthesis has always presented considerable question regarding its origin and its relation to lumbar backache. That this condition can be present without backache is demonstrated in this series; 3% of normal persons presented this condition and 2% of these with backache had it. Breck, Hillsman, and Basom [2] have reported spondylolisthesis in 3% of 450

Dr. Allen DeF. Smith aided in the preparation of the manuscript.

The research data for this paper were obtained while the author was a fellow at the New York Orthopedic Dispensary and Hospital.

[1] Ferguson, A. B.: Roentgen Diagnosis of the Extremities and Spine, Annals of Roentgenology, ed. 2, edited by J. T. Case, New York, Paul B. Hoeber, Inc., 1949, vol. 17, p. 426.

[2] Breck, L. W.; Hillsman, J. W., and Basom, W. C.: Lumbosacral Roentgenograms of 450 Consecutive Applicants for Heavy Work, Ann. Surg. 120: 88, 1944.

men applying for heavy work in a mine. Allen and Lindem[3] report 2.96% in 3,000 normal preemployment examinations.

Such a condition can be of utmost importance in industrial liability in instances in which an injured worker may claim aggravation of a preexisting condition or in medicolegal action in which traumatic origin may be claimed. Ferguson[4] states that overdevelopment of the first sacral vertebra may take place in the presence of spondylolisthesis and may broaden the anterior-posterior diameter of the first sacral vertebra. The degree of overdevelopment indicates the duration of forward slipping.

Posterior Displacement.—Posterior displacement of the fifth lumbar vertebra on the first sacral was recorded in 16 patients with and 14 patients without backache. There is some disagreement as to the relationship that this bears to backache. Smith[5] considers it important roentgenographically in the presence of backache and feels that its occurrence depends on the structure of the facets of the lateral articulations. Willis[6] has cited reasons for which this posterior displacement cannot occur. It was seen in normal persons in this study as well as in those with backache; hence, the presence of so-called posterior displacement in itself is not necessarily associated with backache. Willis has further stated that, in some roentgenograms, the inferior surface of the fifth lumbar vertebra is wider than the superior surface of the first sacral vertebra and produces, thereby, an apparent posterior displacement. I found by actual measurement that this does occur. It is conceivable that a combination of anterior-posterior facets and thinning of the lumbosacral intervertebral disk does result in displacement of the fifth vertebra posteriorly.

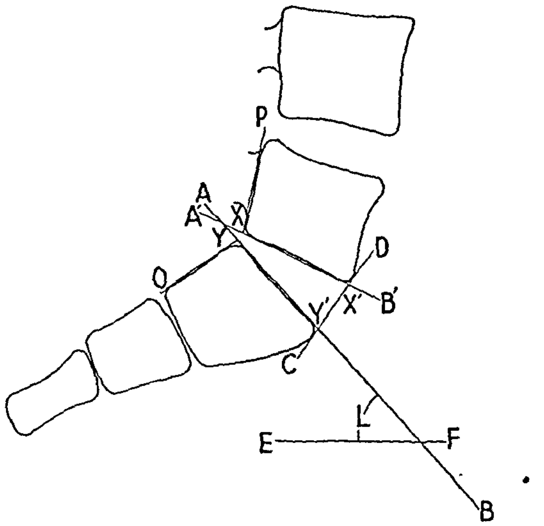


Fig. 1.—Method of measuring the angle L of sacrum. Line E-F represents lower horizontal edge of film, and A-B represents a line parallel to the superior surface of the sacrum. The width of fifth lumbar intervertebral disk is measured anteriorly from X' to Y' and posteriorly from X to Y.

Spina Bifida.—Spina bifida occulta was found in 6% of normal subjects and 4% of the patients with backache. No attempt was made to designate the defect level. Breck, Hillsman, and Basom[2] report 6% in 931 examinations of normal applicants for railroad work. Badgley[8] reported the condition in 9.5% or 43 out of 447 cases of low back pain seen at the University of Michigan clinic in 1934. It is apparent that the condition exists rather frequently in both normal persons and those with back symptoms.

Scoliosis.—Scoliosis or tilt, which are two entirely different and unrelated conditions, were recorded together because of the difficulty of differentiating each without films of the entire spine. It is obvious that a distinct structural scoliosis would have been easy to discern and listed as such. For the purpose of this paper, however, any deviation of the spine from the midline was recorded under this heading.

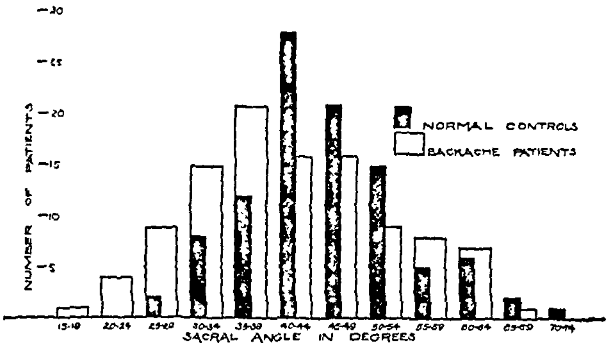


Fig. 2.—Comparison of angle of sacrum in patients with and without backache. The slight decrease of the angle in those with backache is demonstrated.

Osteoarthritis.—Osteoarthritis took the form of moderate lipping in its mildest form, but in some cases it was so extensive that the bodies of some vertebrae were bridged by bone. The condition was present in 22% of the normal and 26% of patients with backache. No attempt was made to differentiate between the mild and severe cases. The minimum age of 40 was required in the normal group so that we could be fairly certain that changes would be present, at least in mild form. The group with backache included all ages. It was anticipated that the contribution of degenerative changes to backache might be determined.

Badgley[8] reports degenerative changes in 20.1% of 447 patients with low backache. Breck, Hillsman, and Basom[2] report changes in 21% of their 450 normal applicants for work (8% severe and 13% mild). The ages in their group were not given. Barton and Biram[9] report 17.3% in 1,000 preemployment examinations for a subsidiary of the General Motors Company. It is, therefore, quite apparent that degenerative changes are present in a large number of persons and in close ratio in

---

3. Allen, M. L., and Linden, M. C.: Significant Roentgen Findings in Routine Pre-Employment Examination of Lumbosacral Spine: *Preliminary* Report, Am. J. Surg. **80**: 762, 1950.

4. Ferguson,[1] p. 162.

5. Smith, A. DeF.: Posterior Displacement of Fifth Lumbar Vertebra, J. Bone & Joint Surg. **16**: 877, 1934.

6. Willis, T. A.: Backward Displacement of Fifth Lumbar Vertebra: An Optical Illusion, J. Bone & Joint Surg. **17**: 347, 1935.

7. Deleted on proof.

8. Badgley, C. E.: Clinical and Roentgenological Study of Low Back Pain with Sciatic Radiation: Clinical Aspects, Am. J. Roentgenol. **37**: 454, 1937.

9. Barton, P. N., and Biram, J. H.: Pre-Placement X-ray Examination of the Lower Back, Indust. Med. **15**: 319, 1946.

backache and 35 normal controls. They reported 5 mm. as normal in both men and women for the posterior disk and 13 mm. for women and 18 mm. for men as normal anterior disk measurements. Under these conditions, 5.3% of the control patients and 20.6% of those with backache showed a normal posterior disk, and 17.1% of the controls and 19.1% of those with backache showed a narrow anterior disk.

Lumbosacral Facets.—Position of lumbosacral intervertebral facets was also considered. A great deal has been published concerning the position of the lumbosacral facets with relation to the stability of this joint. It has been stated that the stablest joint contains facets in the sagittal plane, the so-called internal-external type, and that the least stable is a combination of one anterior-posterior and one oblique or internal-external.

The position of facets at the lumbosacral junction was recorded in both groups according to Ferguson's[12] description, and the various combinations were recorded (table 2). The most frequent position in both groups was in the coronal or anterior-posterior plane and was present in about equal percentages. The anterior-posterior facets would seem to be most representative of the average because they appeared in 59%. This type of facet is not necessarily the stablest. It may be further stated that no facet position can be stable in all directions and under all contingencies.

Age and Sex.—Although backache may occur at any age, it is commonest in both men and women between 40 and 49 years (fig. 4). There are probably a number of reasons for this, the most outstanding being physical decline, obesity, sedentary existence, and occupational factors. It appears that women are more susceptible to backache in the proportion of 60 to 40 and that they are susceptible at an earlier age than men. The figures given here are those obtained at a private clinic and, therefore, do not take into account the large number of industrial injuries occurring in laborers cared for under compensation insurance.

SUMMARY AND CONCLUSIONS

This study has demonstrated fairly conclusively that the findings on roentgenograms of the lumbosacral region of normal persons and of those with backache are quite similar. Congenital anomalies and other anatomic details appear in close numerical sequence. Degenerative changes are somewhat frequenter in patients with backache, and the sacral angle is slightly less in this group. There is no significant difference in the width of either the anterior or posterior disk measurement in either group.

TABLE 3.—*Findings of Several Authors Show Similarity of Changes Observed in Roentgenograms of Persons With and Without Backache*

	Without Backache						With Backache		
Type of Patient	Splithoff	Breck; Hillsman, and Basom[2]	Allen and Lindem[8]	Cushway and Maier *	Brav; Bruch, and Fruchter[11]	Barton and Biram[9]	Splithoff	Badgley[8]	Brav; Bruch, and Fruchter[11]
No. of roentgenograms	100	450	3,000	931	35	1,000	100	447	70
Transitional vertebra	10	11	6.46	5.37	11.1	13.5	10	8.2	12.8
Spondylolisthesis	3	3	2.96	0.32	0	1.6	2	5.5	1.3
Posterior displacement	14	...	...	...	0	1.2	16	...	5.7
Spina bifida	6	6	5.9	17.2	12.8	21.4	4	9.6	20
Osteoarthritis	22	21	13.6	6.76	25.7	17.3	26	20.1	57.1

* Cushway, B. C., and Maier, R. J.: Routine Examination of the Spine for Industrial Employees, J. A. M. A. 92: 701 (March 2) 1929.

It is recognized that the groups reported here are not large; however, this is the largest study reported in which patients both with and without backache were studied in the same institution and in which significant trends are indicated. Compared with reports by other authors (table 3) on normal persons or on a large group of persons with backache, the collective results presented here agree very closely.

The fact that the findings in both groups so closely parallel each other does not discount the importance of routine roentgenographic study in all cases of chronic backache. It is obvious that many factors other than bone structure play a part. The structure of the back as visualized in the film is, however, of great importance not only in diagnosis but also in planning treatment.

The findings from roentgenograms of the vertebral columns of 100 persons without backache are compared with those of the same number of persons with backache. In both groups, there is no significant numerical difference in the incidence of structural variation. The most frequent facet position at the lumbosacral junction is oblique or anterior-posterior in both series. Osteoarthritis is present to a slightly greater extent in patients with backache. The group having backache included persons of all ages, whereas the normal group included only persons who were 40 or over. The width of the fifth lumbar intervertebral disk is approximately equal in both types of persons. The measurements that were found most frequently were 15 mm. anteriorly and from 3 to 5 mm. posteriorly.

3406 Webster St. (9).

---

[12] Ferguson,[1] p. 421.

Relationship of Physician and Patient.—Medical students in their search for psychological truth about themselves and their fellows might utilize Harry Stack Sullivan's concept of "participant observation." . . . The future physician should be instructed that his relationship with the patient, any patient, is always what Sullivan would call an inter-personal process, in which the doctor is involved as much as the patient—involved first as an observer, and second as a therapist. In both capacities the physician will require a certain amount of awareness of his own emotional problems and needs as well as his physical adaptation patterns to enable him to achieve a relative degree of objectivity in observing and dealing with his patient's problem of living.—D. R. MacCalman, M.D., Observations on the Teaching of the Principles of Mental Health to Medical Students, *British Journal of Medical Psychology*, Part 2, 1953.

unselected, normal persons over the age of 40 and in those with backache.

Angle of Sacrum.—Angle of sacrum was measured to determine its relationship to the presence or absence of backache. The angle was measured in the lateral film in both groups. In order to assure that the angle on the film would be accurate as measured, the lateral film was taken with femurs extended so that the longitudinal axis of the patient would form a right angle with the bottom margin of the film. This position permitted the use of the lower edge of the film as the base line. Angles could be erected as shown in figure 1 with E-F as base line and line A-B parallel to the superior surface of the first sacral vertebra. This formed angle L as the angle of the sacrum.

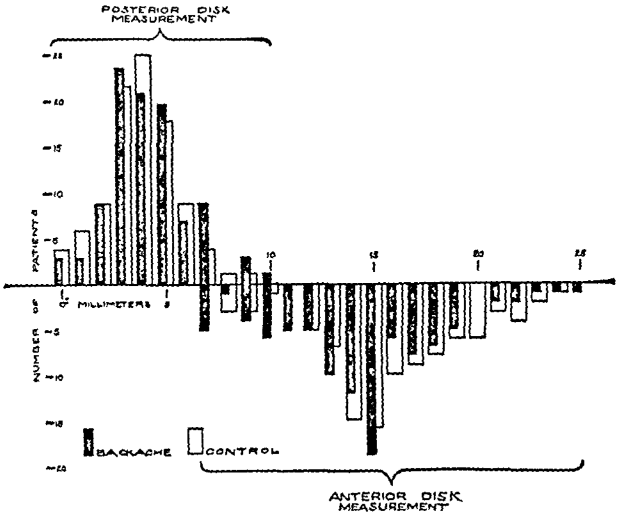


Fig. 3.—The width of the fifth lumbar intervertebral disk in 100 normal persons and 100 persons with backache.

The measurements thus obtained were plotted graphically (fig. 2); the angle in the largest number of normal persons fell between 40 and 44 degrees, whereas in the greatest number of patients with backache it fell between 35 and 39 degrees. There seemed to be a shift throughout the group with backache to a lesser sacral angle. This indicated either that muscle spasm was present and, thus, flattening of the lumbar spine occurred or that patients with backache learn that they are more comfortable if the back is flattened and thus automatically assume this position.

Von Lackum,[10] in 1924, showed the importance of this sacral angle. In a study of cadavers and roentgenograms, he determined the average angle to be 42.5 degrees. If the angle is increased, the shearing strain or stress in an anterior direction is proportionately increased. If the sacral angle measures 35 degrees, the pressure tending to slide forward is 0.57% of the superimposed weight, whereas, if the angle increases to 45 degrees, the strain increases to 0.71%, and at 75 degrees the strain is 0.97%.

The relation of the center of gravity to the sacral angle and lumbosacral joint is also important. This relationship can be represented by passing a vertical line through the center of the body of the third lumbar vertebra in the erect position. If the angle of the sacrum is increased, this line may lie anterior to the first sacral vertebra, indicating an increase in the shearing strain at the lumbosacral junction. Normally the line should lie in the first sacral vertebra. It is obvious that the relationship of the sacrum to the pelvis cannot be changed, because these structures comprise a fixed unit; however, it should be equally obvious that the relationship of the sacrum to the vertical axis can be changed by appropriate orthopedic measures and correction of improper posture.

TABLE 2.—*Position of Facets at the Lumbosacral Junction as Shown by Roentgenograms of 100 Persons With and 100 Persons Without Backache*

Type of Facet	Normal	Backache
Anterior-posterior, bilateral	59	55
Internal-external, bilateral	4	1
Asymmetric		
Left internal-external Right anterior-posterior	9	7
Left anterior-posterior Right internal-external	15	19
Oblique, bilateral, or one internal-external	13	18
Rudimentary	4	0
Indeterminate facets	0	0

Fifth Lumbar Disk.—Width of fifth lumbar intervertebral disk was measured and is presented graphically in figure 3. The question of the normal size of the fifth lumbar intervertebral disk constantly arises in interpretation of roentgenograms of the lumbosacral spine. This in turn raises the question of the significance of a narrow disk in the presence of lumbar backache.

The width of the disk was measured in each of the 200 lateral films (fig. 1). Lines A-B and A′-B′ were established parallel to the superior and inferior surfaces respectively. Line C-D and lines X-Y and X′-Y′ were determined by divider and ruler. It can be seen, by studying this graph as a whole, that the width of the disks in both groups closely approximate each other, although there was tendency to narrowing of the posterior measurement in the group with backache. This difference is, however, very slight. It will be noted further that in four patients without and in three with backache the posterior disks were so narrow that they were recorded as zero. The greatest posterior width was 10 mm.

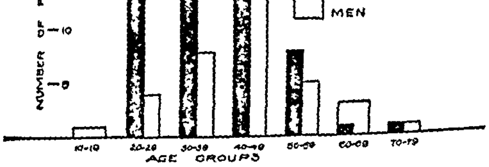


Fig. 4.—Comparison of men (40) and women (60) indicates that incidence of backache increases up to the fourth decade.

The anterior disk measurement showed greater variation; the smallest measurement was 7 mm., and the greatest measurement was 25 mm. Both extremes were found in patients with backache. The largest number of anterior disk measurements in both groups were 15 mm.

A comparable study has been recorded by Brav, Bruck, and Fruchter[11] reporting on 70 patients with backache and 35 normal controls. They reported 5 mm. as normal in both men and women for the posterior disk and 13 mm. for women and 18 mm. for men as normal anterior disk measurements. Under these conditions, 5.3% of the control patients and 20.6% of those with backache showed a normal posterior disk, and 17.1% of the controls and 19.1% of those with backache showed a narrow anterior disk.

---

[10] Von Lackum, H. L.: The Lumbosacral Region, J. A. M. A. 82:1109 (April 5) 1924.

[11] Brav, E. A.; Bruck, S., and Fruchter, J. M.: A Roentgenologic Study of Low Back and Sciatic Pain, Am. J. Roentgenol. 48:39, 1942.

Lumbosacral Facets.—Position of lumbosacral intervertebral facets was also considered. A great deal has been published concerning the position of the lumbosacral facets with relation to the stability of this joint. It has been stated that the stablest joint contains facets in the sagittal plane, the so-called internal-external type, and that the least stable is a combination of one anterior-posterior and one oblique or internal-external.

The position of facets at the lumbosacral junction was recorded in both groups according to Ferguson's[12] description, and the various combinations were recorded (table 2). The most frequent position in both groups was in the coronal or anterior-posterior plane and was present in about equal percentages. The anterior-posterior facets would seem to be most representative of the average because they appeared in 59%. This type of facet is not necessarily the stablest. It may be further stated that no facet position can be stable in all directions and under all contingencies.

TABLE 3.—*Findings of Several Authors Show Similarity of Changes Observed in Roentgenograms of Persons With and Without Backache*

	Without Backache						With Backache		
Type of Patient	Splithoff	Breck; Hillsman, and Basom [2]	Allen and Lindem [8]	Cushway and Maier *	Brav; Bruch, and Fruchter [11]	Barton and Biram [9]	Splithoff	Badgley [8]	Brav; Bruch, and Fruchter [11]
No. of roentgenograms	100	450	3,000	931	35	1,000	100	447	70
Transitional vertebra	10	11	6.46	5.37	11.1	13.5	10	8.2	12.8
Spondylolisthesis	3	3	2.96	0.32	0	1.6	2	5.5	1.3
Posterior displacement	14	...	...	...	0	1.2	16	...	5.7
Spina bifida	6	6	5.9	17.2	12.8	21.4	4	9.6	20
Osteoarthritis	22	21	13.6	6.76	25.7	17.3	26	20.1	57.1

* Cushway, B. C., and Maier, R. J.: Routine Examination of the Spine for Industrial Employees, J. A. M. A. 92: 701 (March 2) 1929.

Age and Sex.—Although backache may occur at any age, it is commonest in both men and women between 40 and 49 years (fig. 4). There are probably a number of reasons for this, the most outstanding being physical decline, obesity, sedentary existence, and occupational factors. It appears that women are more susceptible to backache in the proportion of 60 to 40 and that they are susceptible at an earlier age than men. The figures given here are those obtained at a private clinic and, therefore, do not take into account the large number of industrial injuries occurring in laborers cared for under compensation insurance.

SUMMARY AND CONCLUSIONS

This study has demonstrated fairly conclusively that the findings on roentgenograms of the lumbosacral region of normal persons and of those with backache are quite similar. Congenital anomalies and other anatomic details appear in close numerical sequence. Degenerative changes are somewhat frequenter in patients with backache, and the sacral angle is slightly less in this group. There is no significant difference in the width of either the anterior or posterior disk measurement in either group.

It is recognized that the groups reported here are not large; however, this is the largest study reported in which patients both with and without backache were studied in the same institution and in which significant trends are indicated. Compared with reports by other authors (table 3) on normal persons or on a large group of persons with backache, the collective results presented here agree very closely.

The fact that the findings in both groups so closely parallel each other does not discount the importance of routine roentgenographic study in all cases of chronic backache. It is obvious that many factors other than bone structure play a part. The structure of the back as visualized in the film is, however, of great importance not only in diagnosis but also in planning treatment.

The findings from roentgenograms of the vertebral columns of 100 persons without backache are compared with those of the same number of persons with backache. In both groups, there is no significant numerical difference in the incidence of structural variation. The most frequent facet position at the lumbosacral junction is oblique or anterior-posterior in both series. Osteoarthritis is present to a slightly greater extent in patients with backache. The group having backache included persons of all ages, whereas the normal group included only persons who were 40 or over. The width of the fifth lumbar intervertebral disk is approximately equal in both types of persons. The measurements that were found most frequently were 15 mm. anteriorly and from 3 to 5 mm. posteriorly.

3406 Webster St. (9).

[12] Ferguson,[1] p. 421.

Relationship of Physician and Patient.—Medical students in their search for psychological truth about themselves and their fellows might utilize Harry Stack Sullivan's concept of "participant observation." . . . The future physician should be instructed that his relationship with the patient, any patient, is always what Sullivan would call an inter-personal process, in which the doctor is involved as much as the patient—involved first as an observer, and second as a therapist. In both capacities the physician will require a certain amount of awareness of his own emotional problems and needs as well as his physical adaptation patterns to enable him to achieve a relative degree of objectivity in observing and dealing with his patient's problem of living.—D. R. MacCalman, M.D., Observations on the Teaching of the Principles of Mental Health to Medical Students, *British Journal of Medical Psychology,* Part 2, 1953.

ESOPHAGEAL ATRESIA AND TRACHEOESOPHAGEAL FISTULA

John B. Grow, M.D.
and
A. J. Neerken, M.D., Denver

Formerly considered a mere curiosity in pathological annals, esophageal atresia and tracheoesophageal fistula have recently assumed a new importance to all physicians who deal with the care of the newborn infant. The disease itself has been known for many years, and Durston described the condition accurately in 1670.[1] The first attempt at surgical treatment, a gastrostomy, was made in 1888; however, it was in 1913 that Richter suggested the operation that is followed today, i. e., closure of the fistula and reestablishment of the continuity of the esophagus.[2] To Haight (1941) goes the credit for the first successful one stage operative repair.[3]

A consideration of the normal embryologic development of the trachea and esophagus is of interest, since it will explain the occurrence of the anomaly. The trachea and esophagus originate as a common portion of the foregut. Early in the second month of intrauterine life two lateral ridges of mesoderm develop, which push the endoderm in to fuse in the midline, forming a complete septum. It is apparent that failure of development of a portion of this septum would result in a fistula between the esophagus and trachea. After delineation of these two structures has occurred, the epithelial lining of the esophagus proliferates rapidly, so that the lumen disappears, leaving a solid cord of cells. Embryologists differ in opinion as to whether this solid cord extends for the entire length of the esophagus or occurs only in localized areas. Most agree that some degree of transient obliteration of the esophageal lumen takes place. Recanalization then follows as the esophagus assumes its definitive state. Should the recanalization be incomplete, an area of atresia results (fig. 1).

There are other theories of the development of this anomaly. Fluss and Poppen believe pressure from anomalous vessels to be responsible and cite three cases in which aberrant vessels passed behind the esophagus at the level of the defect.[4] Ingalls and Prindle, in a study of 107 cases in the Boston area, found maternal hydramnios to have been present in 25%. They believe increased pressure in the pneumoenteric recesses, two laterally placed prolongations of the peritoneal cavity that extend along the developing foregut, to be an important etiological factor.[5] The anomaly may take any form, from atresia of the lower two-thirds of the esophagus with no connection to the trachea to a completely patent esophagus with a tracheoesophageal fistula. By far the commonest defect is a blind upper esophageal pouch with the distal esophageal segment communicating with the trachea near its bifurcation.

DIAGNOSIS

The diagnosis of this disease is not difficult if its possibility is kept in mind. Any newborn infant who exhibits the triad of excessive salivation, choking and cyanosis, and vomiting and aspiration of oral feeding must be considered suspect. The obstruction to passage of a soft 8-F or 10-F urethral catheter into the stomach is almost certain evidence of esophageal atresia. X-ray examination will give further information. After a catheter has been passed into the esophagus until it meets obstruction, 1 to 2 cc. of iodized poppy seed oil (40%) is instilled. Usually a blind upper pouch will be seen. Its level should be noted, since this offers some idea of the length of the atretic esophagus. It is also important to examine the lung fields carefully for the presence of atelectasis or pneumonia. Absence of air in the stomach indicates a type 1 defect (esophageal atresia without tracheoesophageal fistula) or occasionally a tracheoesophageal fistula so small that air has not passed through the fistula into the stomach. The characteristic findings in the type 3 anomaly (blind upper pouch with lower esophageal segment connecting with trachea) can be seen in figure 2.

PROCEDURE

Preoperative Preparation.—Most infants are several days old before they undergo surgical treatment and are often dehydrated. Accordingly, parenterally administered fluids are necessary. Incision and cannulation are made into an ankle vein. We agree with Potts that these infants may be easily overhydrated and that conservatism in the administration of fluids is in order.[6] Forty to fifty cubic centimeters of fluid per pound of body weight should be given. Not more than 20 cc. per pound should be given in the form of a 0.45% saline solution. To give more salt invites pulmonary edema. A blood cell count is taken when the patient is hydrated and whole blood given if indicated.

The most frequent preoperative complications in these infants are pulmonary. Atelectasis and pneumonitis result from the aspiration of saliva that cannot be swallowed and gastric secretions that pour from the stomach into the trachea through the fistula. It is important that aspiration of oral secretions be minimized by frequent cleansing of the mouth and pharynx with a soft rubber catheter attached to the mechanical suction apparatus. We feel that ordinarily bronchoscopy and laryngoscopy are to be avoided, since even minimal trauma to the glottis is undesirable. The patient is placed in an incubator on admission to the surgical service, and oxygen is ad-

---

From the Surgical Service, Children's Hospital.

Read at the Sixth Clinical Session of the American Medical Association, Denver, Dec. 3, 1952.

[1] Durston, cited by Howard, R.: Oesophageal Atresia with Tracheo-Esophageal Fistula: Report of 6 Cases with 2 Successful Oesophageal Anastomoses, M. J. Australia 1: 401, 1950.

[2] Richter, H. M.: Congenital Atresia of the Oesophagus: An Operation Designed for Its Cure, Surg., Gynec. & Obst. 17: 397, 1913.

[3] Haight, C., and Towsley, H. A.: Congenital Atresia of the Esophagus with Tracheoesophageal Fistula: Extrapleural Ligation of Fistula and End-to-End Anastomosis of Esophageal Segments, Surg., Gynec. & Obst. 76: 672, 1943.

[4] Fluss, Z., and Poppen, K. J.: Embryongenesis of Tracheoesophageal Fistula and Esophageal Atresia: A Hypothesis Based on Associated Vascular Anomalies, A. M. A. Arch. Path. 52: 168 (Aug.) 1951.

[5] Ingalls, T. H., and Prindle, R. A.: Esophageal Atresia with Tracheoesophageal Fistula: Epidemiologic and Teratologic Implications, New England J. Med. 240: 987, 1949.

[6] Potts, W. J.: Congenital Atresia of the Esophagus with Tracheoophageal Fistula, J. Thoracic Surg. 20: 671, 1950.

ministered. Antibiotics in the form of procaine penicillin and dihydrostreptomycin are given in a further attempt to combat pneumonitis.

Operation.—Surgical correction of the anomaly should be undertaken as soon as the infant reaches a reasonably satisfactory condition. This can ordinarily be done in 6 to 12 hours. If pneumonia is extensive it may be wise to delay surgery for 24 hours. Seldom should operation be postponed longer than this.

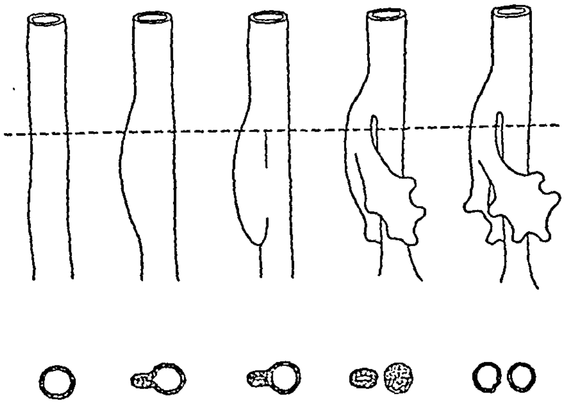


Fig. 1.—Embryologic development of the trachea and esophagus.

A right-sided approach is desirable, since this keeps the aortic arch out of the operative field; however, if pulmonary complications are marked on the left and the right lung is relatively clear, it is prudent to operate from the left. In the type 1 anomaly (esophageal atresia without tracheal fistula) the distal segment of esophagus is apt to be very small and may be only a fibrous cord. Thus, preoperative diagnosis of a type 1 defect also calls for a left-sided operation so that a portion of stomach may be brought up into the chest if necessary. Anesthesia may be given by intratracheal tube or face mask. If difficulty is encountered in the introduction of the intratracheal tube, it is wise to abandon it and resort to the face mask. Every precaution must be taken to avoid glottic edema.

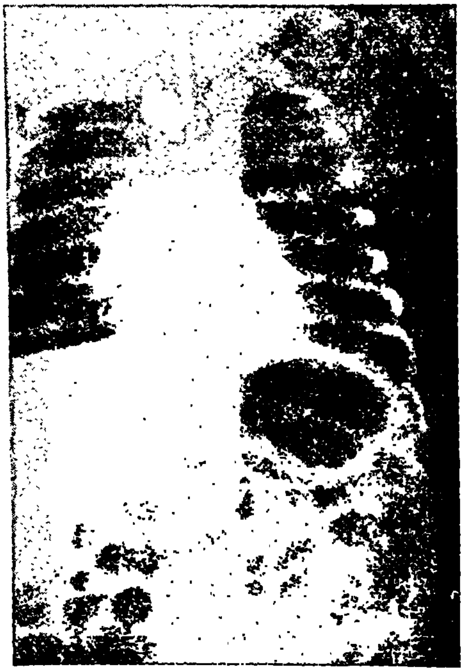


Fig. 2.—Type 3 anomaly. Note the blind upper pouch containing iodized poppy seed oil (40%) and the presence of gas in the gastrointestinal tract. Eighteen of the 20 cases reported herein are of this type.

The patient is placed on the operating table in the lateral decubitus position with the right side up. Incision is made along the course of the fourth rib from 2 cm. lateral to the spine to the anterior axillary line. The pleural cavity is then entered through the fourth interspace and the lung retracted anteriorly with sponge sticks. The mediastinal pleura is opened and the azygos vein identified and divided between ligatures. The distal segment of the esophagus is then located and followed to its communication with the trachea. The fistula is divided and the tracheal side closed with one or two mattress sutures of nonabsorbable surgical strands.

The proximal pouch of esophagus is then identified. This may be facilitated by having the anesthetist pass a catheter into it. The proximal segment is usually well developed and has an excellent blood supply. This is not true of the distal segment. Therefore, the defect should be bridged by bringing the proximal segment down to the distal, leaving the latter as undisturbed as is reasonable. Stay sutures are placed in the proximal segment to control it while the anastomosis is being made. It is important to handle the esophagus with forceps as little as possible. An opening the size of the distal segment is then made in the lowermost portion of the upper segment. An anastomosis is made using interrupted sutures of 5-0 silk. A two layer anastomosis is desirable, but often only one layer of sutures can be placed without putting undue tension on the segment. After the posterior sutures have been placed, the catheter in the proximal esophagus is advanced into the stomach and the anastomosis completed (fig. 3 and 4).

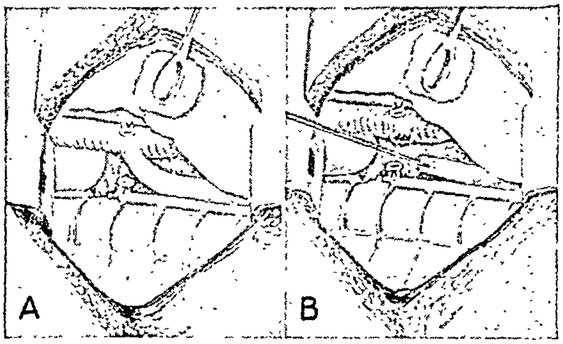


Fig. 3.—Procedure in surgical closure of the tracheoesophageal fistula and anastomosis of the esophageal segments. *A*, the azygos vein has been divided. The blind upper pouch can be seen on the left. The lower esophageal segment connects with the trachea. *B*, the fistula has been divided and the defect in the trachea closed with mattress sutures.

The mediastinal pleura in these babies is so thin that it is usually impossible to reapproximate it over the anastomosis. Two 16-F catheters are used to drain the pleural space. They are brought out through stab wounds located anteriorly in the third interspace and posterolaterally in the eighth, and are connected to water-sealed bottles. The chest is closed in layers with interrupted nonabsorbable surgical sutures.

The patient is then turned on his back and a Stamm gastrostomy made. The catheter is fished out of the stomach, a heavy nonabsorbable surgical suture tied to it, and the catheter withdrawn through the mouth. The two ends of the suture are tied together, and it is left as a guide in the event that postoperative dilations should be necessary. During the operation the estimated blood loss is made up by transfusions. The baby is returned to the postoperative ward in his incubator.

Postoperative Care.—The gastrostomy tube is connected to Wangensteen suction. The stomach is kept decompressed by this method for 48 hours. During this time fluid balance is maintained parenterally. If the infant's condition is satisfactory, water and formula are then started by slow drip through the gastrostomy tube. The stomach should not be permitted to become distended, allowing regurgitation to take place.

On the third postoperative day glucose solution is offered by mouth. If this is taken without difficulty, formula is given. A leak in the anastomosis, if present, will be manifested by the presence of milk curds in the chest drainage. In the event that this occurs, continuous suction of 10 to 15 cm. of water is applied to the chest bottles. If the anastomosis is watertight, a portable chest film is obtained to prove the complete reexpansion of the lung and the tubes removed from the chest.

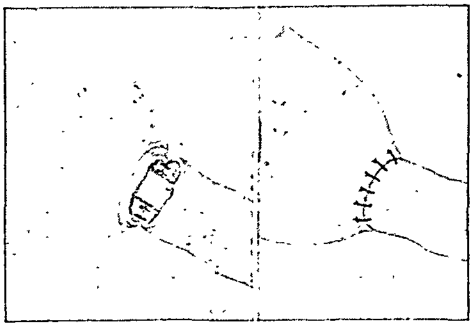


Fig. 4.—After the posterior sutures have been placed, a catheter is passed into the stomach and the anastomosis completed.

Throughout the early postoperative period the patient is given antibiotics. Before discharge from the hospital a barium esophagram is obtained. If there is evidence of stricture, the string through the esophagus and the gastrostomy is left in place. Leakage through the gastrostomy is minimized by use of a plastic button placed in the stoma. If dilations are necessary, they are done in the retrograde manner. The gastrostomy should not be allowed to close until the child has proved the adequacy of his esophageal lumen by several months without dilations.

ANALYSIS OF CASES

During the three year period from April, 1948, to April, 1951, 20 patients with esophageal atresia were managed with this program. The type 3 anomaly occurred 18 times, and types 1 and 5 once each. The average age at which these infants reached the operating table was 2.4 days—somewhat earlier than the average reported in many series. We feel this reflects considerable credit on the diagnostic acuity of the pediatricians and obstetricians practicing in our area. Seven of the 20 patients had atelectasis and pneumonitis preoperatively. It is interesting to note that this group with pulmonary complications shows an average age no different from the series as a whole, suggesting that age alone is not the important factor in preoperative pneumonia. Of these seven patients, five recovered (71.4%), a survival rate better than that for the entire series. We have found the size of the infant of greater prognostic significance. Thus, of our 20 patients four weighed less than 5 lb. (2.3 kg.). None of these is alive.

Five patients in this series had other congenital anomalies; they included (1) incomplete rotation of gastrointestinal tract and patent foramen ovale (only partially covered by septum primum), (2) double aortic arch, (3) club feet, vertebral anomalies, and deformities of joints, (4) hypospadias and cleft soft palate, and (5) a supernumerary thumb. None of these anomalies was incompatible with life.

Of the 20 patients, 11 survived. One death occurred on the operating table. The other eight occurred during the early postoperative period. Autopsy was conducted at all deaths. The findings were (1) a leak in anastomosis in six (67% of deaths), (2) pulmonary complications (hyaline membranes in three [33%] and patchy atelectasis and bronchopneumonia in nine [100%]), (3) kernicterus in two, and (4) central nervous system birth trauma in one.

Several of these findings are worthy of comment. The most prominent cause of death is failure of the anastomosis. This accounted for two-thirds of the deaths. The importance of an anastomotic leak is further emphasized by the fact that, of the seven patients in whom a leak developed, only one survived. This is in marked contrast to the many reports in the literature of patients surviving esophageal-cutaneous fistulas when the extrapleural operation was used. There can be no question but that this is a serious drawback to the transpleural approach.

Pulmonary hyaline membranes were found in three patients. In two of these this must be considered the primary cause of death. The third patient also had an esophagopleural fistula. Pulmonary hyaline membranes are now recognized as a leading cause of neonatal death, probably accounting for from 25 to 50% of deaths in this age group.[7] It is interesting to note that at thoracotomy in the three patients with this finding no gross abnormality was noted in the lungs.

Four patients required esophageal dilation postoperatively. This was done by the retrograde route. In one of these infants nearly complete obstruction developed three months after the child left the hospital. Esophagoscopy was performed and was followed by mediastinitis. Emergency thoracotomy was carried out; the area of perforation, which was found to be at the site of an old, apparently sterile mediastinal abscess, resected; and end-to-end anastomosis done. The patient has since done well.

SUMMARY

The diagnosis of esophageal atresia is based on the finding of excessive salivation, choking and cyanosis, and vomiting and aspiration of oral feedings. The treatment of choice is surgical closure of the tracheoesophageal fistula and anastomosis of the esophageal segments as a one stage procedure. Of 20 patients operated on between 1948 and 1951 by the transpleural route, 11 survive.

1820 Gilpin St. (Dr. Neerken).

---

[7] Miller, H. C.: Pulmonary Hyaline Membranes in Newborn Infants, Postgrad. Med. 10: 511, 1951.

PERITONEOSCOPY IN MALIGNANT LESIONS OF THE ABDOMEN

Samuel J. Zoeckler, M.D., Philip G. Keil, M.D.
and
George J. Hegstrom, M.D., Des Moines, Iowa

The value of peritoneoscopy, direct cholangiography, and liver biopsy in the diagnosis and treatment of hepatic and biliary tract disease has been established.[1] Use of the peritoneoscope in evaluation of the patient with carcinoma has not been sufficiently stressed. The diagnosis of intra-abdominal malignant lesions can frequently be established by this procedure. During the period November, 1949, to December, 1952, we performed 660 peritoneoscopic examinations. Of these, 84 were on patients with known or suspected carcinoma. A review of these cases forms the basis for this report.

METHOD

The records of 84 patients examined peritoneoscopically for possible malignant lesions were reviewed. The patients were placed in one of three groups: (1) group A, patients with a clinical diagnosis of carcinoma, in whom it was desired to establish operability; (2) group B, patients with previously resected carcinoma, in whom the presence of recurrence or metastases was suspected, and (3) group C, patients with a clinical diagnosis of carcinoma, in whom the diagnosis was proved incorrect at the time of peritoneoscopy. Each group was then reviewed from the standpoint of accuracy of diagnosis and evaluation of the procedure.

RESULTS

Groups A and B comprise all patients with a proved diagnosis of carcinoma. The average age of the combined group was 57.8 years. The youngest was 25, and the eldest 75 years. All but four patients were men, a factor controlled by the nature of our hospital.

Group A (table 1).—This group comprised 39 patients, each with a clinical diagnosis of carcinoma. Radiological and laboratory studies had ruled out obvious metastatic lesions. Peritoneoscopic examination was performed to rule out intra-abdominal metastases. Of the 39 patients, 20 (51.3%) had metastatic carcinoma in the liver, omentum, peritoneum, or a combination of these locations. In 13 of these 20 cases biopsy of a tumor nodule was obtained by the forceps technique. Twelve (30.8%) had no visible metastases. In five patients (15.4%) peritoneoscopy was unsatisfactory and laparotomy advised. Failure was due in two instances to the production of pneumo-omentum and in one each to marked small bowel distention, dense adhesions from previous operation, and to peritonitis. Of the 12 patients with no visualized metastases, 7 had resectable lesions at surgery. The remainder had local extension or vascular invasion, which precluded resection of the primary lesion.

Group B (table 2).—Eighteen patients comprised this group. In each instance a resection had been done previously for carcinoma. In no instance had metastases been found beyond the regional nodes. All were admitted because of recurrence of symptoms or routine recall by the tumor registry. Peritoneoscopy was then performed. Nine (50%) were found to have intra-abdominal metastases. Five (27.8%) had no evidence of recurrence or metastases. The procedure was unsatisfactory in four patients (22.2%). The limiting factor in these four was the presence of massive postoperative intra-abdominal adhesions. Two of these were later explored and metastases demonstrated. One refused exploration, and roentgen evidence of pulmonary metastases developed. The fourth patient had previously been found to have transitional cell carcinoma metastatic to the inguinal nodes. Exhaustive study of the genitourinary and other organ systems has failed to reveal a primary growth.

Group C (table 3).—There were 27 patients in this group; 25 were men. The average age was 60.2 years, the youngest was 25, and the eldest 84 years. Twenty-five patients (93%) had a clinical diagnosis of intra-abdominal carcinoma that could not be refuted by physical examination or roentgen and laboratory studies. Of these, 13 (52%) had advanced portal cirrhosis peritoneoscopically and histologically. In five (20%) the liver and abdominal contents appeared normal and liver structure was normal. These five patients had inanition on the basis of gastritis, chronic glomerulonephritis, hypertensive cardiovascular disease, chronic duodenal ulcer, and severe dental sepsis. Five patients had chronic hepatitis, one in association with subacute bacterial endocarditis, one with chronic duodenal ulcer, and another with tuberculous peritonitis; the remaining two patients had no concomitant disease. There were two instances in which carcinoma of the uterus was diagnosed clinically. In both cases peritoneoscopy revealed myomas of the uterus. One was proved at operation; the other patient has postponed surgery.

COMMENT

Diagnostic laparotomy has been commonly employed in the elucidation of unexplained ascites and abdominal masses. It is performed on patients in whom metastases are suspected in order to establish a diagnosis. It is generally agreed that only a palliative surgical procedure is indicated in the presence of multiple hepatic, omental, or peritoneal metastases. In such instances, laparotomy

---

From the Department of Internal Medicine, Veterans Administration Hospital.

Sponsored by the Veterans Administration with the approval of the Chief Medical Director. Statements and conclusions by the authors are a result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

[1] Ruddock, J. C.: Peritoneoscopy, South. Surgeon 8: 113-135 (April) 1939. Lee, W. Y.: La peritoneoscopia, J. Internat. Coll. Surgeons 4: 511-519 (Dec.) 1941; Evaluation of Peritoneoscopy in Intra-Abdominal Diagnosis, Rev. Gastroenterol. 9: 133-141 (March-April) 1942. Ruddock, J. C.: The Application and Evaluation of Peritoneoscopy, California Med. 71: 110-116 (Aug.) 1949. Royer, H., and Sclari, A. V.: Cholangiography Performed with the Help of Peritoneoscopy, Gastroenterology 8: 586-591 (May) 1947. Keil, P. G., and Landis, E. N.: Peritoneoscopy, J. Iowa M. Soc. 41: 48-50 (Feb.) 1951; Peritoneoscopic Cholangiography, Arch. Int. Med. 88: 36-41 (July) 1951.

becomes a useless procedure and would not usually be advised if the true nature of the disease were known.

Peritoneoscopic examination affords excellent visualization of the organs within the peritoneal cavity. Biopsy by forceps can be obtained under direct vision from liver or metastatic implants in omentum and peritoneum. The biliary tree may be outlined by injection of radio-opaque material into the gallbladder under visual control. The mortality is less than 0.1%, and the procedure causes little discomfort. The patient may be hospitalized for one day or less.

In the evaluation of intra-abdominal malignant lesions, the determination of operability is often difficult. A survey for metastatic lesions is readily accomplished by physical examination and roentgenographic studies. Since we began using peritoneoscopy as a part of our routine study of patients with suspected malignant lesions, 51.3% have been spared laparotomy. In these cases a clinical diagnosis of carcinoma without evidence of metastases had been established. Peritoneoscopy revealed metastatic lesions. In addition, over half of the 30.8% in whom no metastases were found at peritoneoscopy had operable lesions. The remainder were inoperable because of involvement of vital structures.

TABLE 1.—*Determination of Operability by Peritoneoscopy*

Site of Carcinoma	Total Cases	Metastases Absent	%	Metastases Present	%	Unsatisfactory Examination	%
Stomach........	19	6	31.6	8	42.1	5	26.3
Pancreas........	7	2	28.6	4	57.1	1	14.3
Colon...........	6	2	33.3	3	50.0	1	16.6
Lung............	5	1	20.0	4	80.0	0	0.0
Ovary...........	1	1	100.0	0	0.0	0	0.0
Unknown........	1	0	0.0	1	100.0	0	0.0
Total..........	39	12	30.8	20	51.3	7	17.9

TABLE 2.—*Determination of Metastases by Peritoneoscopy*

Site of Carcinoma	Total Cases	Metastases Present	%	Metastases Absent	%	Unsatisfactory Procedure	%
Colon............	6	4	66.6	1	16.6	1	16.6
Stomach.........	6	3	50.0	1	16.7	2	33.3
Ovary............	3	2	66.7	1	33.3	0	0.0
Lung.............	1	0	0.0	1	100.0	0	0.0
Skin (melanoma)	1	0	0.0	1	100.0	0	0.0
Inguinal nodes...	1	0	0.0	0	0.0	1	100.0
Total...........	18	9	50.0	5	27.8	4	22.2

TABLE 3.—*Correct Diagnosis Established by Peritoneoscopy*

Peritoneoscopic Diagnosis	No. of Cases
Portal cirrhosis	13
Normal abdominal contents	5
Chronic hepatitis	5
Myoma of uterus	2
Tuberculous peritonitis	1
Subhepatic mass	1
Total	27

An equally important group of patients is comprised of those who return with various symptoms after resection of a malignancy. We have found recurrence or metastases in 50% of such patients and no recurrence in 27.8%. It is probable that most of these patients would have been advised to undergo further operative procedures.

Those patients in whom we have been able to refute the diagnosis of intra-abdominal malignant lesions constitute an important group. Clinically they showed marked emaciation, ascites, jaundice, and a history of dyspepsia. Clinical evaluation in each was suggestive of malignancy. Peritoneoscopy in these patients revealed such diverse conditions as portal cirrhosis, tuberculous peritonitis, cholelithiasis, subacute bacterial endocarditis, and uterine myoma. In some no evidence of intra-abdominal disease was found and the patient was suffering from severe malnutrition secondary to nonmalignant disease. In the entire group there were no complications and no deaths as a result of the procedure. Peritoneoscopic examination was unsuccessful in 10.7% (9 cases). The usual cause for failure to adequately visualize structures within the peritoneal cavity was the presence of massive adhesions from previous operative procedures (five patients). In two instances the procedure proved unsatisfactory because of pneumo-omentum.

A markedly distended bowel will produce a similar effect and was encountered in one case. Peritoneoscopy failed in one instance because of peritonitis, with adhesions of bowel to abdominal wall.

Peritoneoscopy is not intended to replace exploratory laparotomy. Like the roentgenologic and laboratory study it is an aid in the complete evaluation of gastrointestinal problems. It is a valuable procedure in the diagnosis and management of the patient with carcinoma.

SUMMARY

Metastatic lesions were demonstrated in 51.3% of patients who appeared to have localized carcinoma by conventional roentgenologic and laboratory studies. Recurrent or metastatic carcinoma was demonstrated in 50% of patients who had undergone previous resections for operable carcinoma. Ninety-three per cent of patients with a diagnosis of malignant lesions, based on clinical findings that could not be refuted by appropriate laboratory and roentgenologic studies, were shown peritoneoscopically to have diseases other than carcinoma. Peritoneoscopy is a valuable procedure in the diagnosis and prognosis of carcinoma involving intraperitoneal structures.

Education for Professional Services.—The professional man must act in a three fold capacity. He must appear simultaneously as skilled servant, as sage and as priest. In no professional role is this trinity more fully illustrated than in that of the physician. Knowledge is needed and often most detailed knowledge sharpened into tempered skill; but that is not enough. Wisdom must be there to condition knowledge; *but that is not enough.* Understanding must guide skill and humanize wisdom and then only do we see the great physician. Surely it will be conceded that quite apart from technical competence and medical knowledge the physician must be wise in his understanding of human beings; therefore it follows that his education must be sufficiently broad, sufficiently humane that it will discover and develop those qualities of mind which later will be required to direct technical skill. The basis on which such an education can best be built is afforded by the traditional liberal curriculum which sprang from the humanities.—S. Dorst, M.D., Education for Professional Services, *The Pharos of Alpha Omega Alpha Honor Medical Society,* May, 1953.

CLINICAL NOTES

MYELOID METAPLASIA WITH TERMINAL LEUKEMIA

REPORT OF A CASE

Robert S. Long, M.D.
Eugene E. Simmons, M.D.
and
John R. Schenken, M.D., Omaha

The patient in this case presented a difficult diagnostic hematological problem, with clinical and laboratory variations suggesting different disease processes existing at various times during the course of her illness. A single positive diagnosis could not be established until rather late in her course. The reason for reporting this case is to suggest that many reports in the literature of seemingly different disease processes may be in reality only observations of varying stages of the same basic disease.

REPORT OF A CASE

A 60-year-old white widow was referred for examination on Sept. 20, 1948, because of a tumor mass in the left upper portion of the abdomen. Her chief complaint was a feeling of fatigue, which had been present for several months but was not increasing appreciably. She had also noted a feeling of pressure or weight in the left side of the abdomen and left flank, and she was not completely comfortable while sitting or while lying on the left side. She stated that her appetite was fairly good and that she had not lost any weight. There were no definite symptoms referable to any body system other than nervous indigestion consisting of mild upper abdominal distress and gaseous eructations after meals at times.

Physical examination showed a pleasant, alert woman in no apparent distress and with normal coloring of skin, nail beds, and lips; moderate benign nervousness and apprehension; a weight of 139 lb. (63 kg.); and a height of 63 in. (1.532 m.). Her eyes were essentially normal except for mild sclerosis of retinal arterioles. There was mild chronic injection of the pharynx, mild abnormal redness of the tongue with low partially atrophied papillae, and one nontender small lymph node palpable in right upper anterior cervical group. The lungs were clear to percussion and auscultation; the heart beat was regular but rapid at 120 beats per minute, with tones of good quality and no murmurs; and the blood pressure was 172 mm. Hg systolic and 102 mm. Hg diastolic. A visible rounded mass was noted in the left side of abdomen, which on palpation felt firm but not hard and did not have a sharp definite edge (this subsequently proved to be an enlarged spleen). Pelvic examination was essentially normal except for mild senile vaginitis; the extremities and deep tendon reflexes were normal. The chest roentgenogram was essentially normal. A retrograde pyelogram showed good renal function and normally outlined kidneys, the left being separate from a large mass evident in the left flank and abdomen. The upper gastrointestinal roentgenogram series showed no abnormalities in that system and indicated that the mass in the left side of the abdomen was an enlarged spleen. Skull roentgenograms were normal. No abnormalities of the ribs, vertebrae, or pelvis were noted on the films taken. The electrocardiogram was normal.

The initial laboratory studies of venous blood showed the following results: hemoglobin 20.2 gm. (sodium carbonate and photoelectric determination), red blood cells 7,200,000 per cubic millimeter, white blood cells 5,700 per cubic millimeter, blood platelets from 29,000 to 74,000 per cubic millimeter, prothrombin time 26% of normal, nonprotein nitrogen 31.6 mg. per 100 cc., and sedimentation rate 0.5 mm. per hour (Wintrobe). The bleeding time was 20 minutes, and the coagulation time 6 minutes. The differential count of the blood smear showed: 20 to 28% segmented neutrophils, 46 to 55% staff form neutrophils, 13 to 17% lymphocytes, 1 to 5% monocytes, 1 to 2% blast forms, and 4 to 5% unclassified young white blood cells on several counts of 100 cells. The initial urinalysis showed specific gravity 1.012, pH 5.5, albumin 4+, no glucose, a microscopic rare white blood cell, and Bence Jones protein negative. At the time of pyelography the albumin was found in both kidneys. Smears from a sternal marrow aspiration were reported to show little true marrow tissue, a normoblastic erythroid hyperplasia, and no megakaryocytes. The operator had great difficulty in aspirating enough marrow to prepare an adequate smear.

Further questioning at this time in regard to the history revealed that the patient had borne four children without undue bleeding or other difficulty, and none of them had shown to date any abnormal bleeding tendencies; however, the patient stated that when she had had her teeth extracted 15 years previously (at age 45) there was excessive and prolonged bleeding of the gingiva for several days. Since that time she had noted the occurrence of easy bruising with ecchymoses appearing in the skin at times even without apparent trauma. Nosebleeds had also occurred spontaneously on numerous occasions. Ten years previously (at age 50) a perineorrhaphy had been done, and a perineal hematoma appeared postoperatively, which resulted in a sloughing of the sutures and failure of the repair. No enlargement of the spleen was noted at that time. Two years later the operation was repeated successfully without untoward bleeding or other incident. During the seven years prior to the present period of observation she had taken various medicaments more or less regularly for hypertension. Her local physician reported that these drugs were theophylline, aminophylline, phenobarbital, and Veratrite (a combination of veratrum viride, sodium nitrite, and phenobarbital). During these years no enlarged spleen had been noted at any time. She had not been examined between Feb. 20, 1947, and Sept. 14, 1948.

After the initial studies were completed the patient was treated with large amounts of synthetic vitamin K, rutin, ascorbic acid, and a polyvitamin preparation. After about a week of this treatment a recheck of the peripheral blood showed an improvement of the bleeding time to 5 minutes, coagulation time to 4 minutes, and prothrombin time to 70% of normal; the platelets had increased to 128,500 per cubic millimeter. A tourniquet test at the same time was strongly positive, and several small cutaneous ecchymoses were seen. The total serum protein was 7.03 gm. per 100 cc.: 5.22 gm. per 100 cc. albumin and 1.81 gm. per 100 cc. globulin.

A series of five small therapeutic exposures of x-ray over the spleen were then given without resulting in appreciable shrinkage in its size. This was thought to exclude the possibility of a lymphoblastoma of the spleen. Examination of the sternal marrow was repeated at this time. It was again difficult to obtain true marrow tissue. Examination of the smears showed myeloid and erythroid elements. There appeared to be some arrest of the myeloid elements at the metamyelocyte level. Some erythroid hyperplasia was present, and megaloblasts were seen. Examination of eight smears failed to reveal any megakaryocytes. A Congo red test was then performed, and 80% of the dye was retained on one occasion and 72% on recheck five days later.

Another test of the bleeding time gave a figure of 1½ minutes, of the coagulation time 6 minutes, and of the platelet count 152,200; a biopsy procedure was thought to be safe. A small left rectus incision was made, and the enlarged, rather soft purplish spleen was exposed and a biopsy specimen obtained. Splenectomy was not considered at this time because of the complete absence of megakaryocytes. A biopsy was also obtained from the liver, which appeared grossly normal. Microscopic examination of the liver tissue showed fatty meta-

---

Dr. Robert M. Cochran made the photographs.

From the Department of Internal Medicine (Drs. Long and Simmons) and the departments of medicine and pathology, University of Nebraska College of Medicine, and Nebraska Methodist Hospital (Drs. Long, Simmons, and Schenken).

morphosis. The spleen tissue showed distortion of the general architecture because of the presence of hematopoietic foci, including numerous megakaryocytes (fig. 1). A collection of hyalin material in one area was suggestive of amyloid but not typical of the usual picture of parenchymatous amyloid distributed about the central arteries and deposited within the malpighian bodies. The pathological diagnosis was myeloid metaplasia. A rib biopsy was also made. The rib marrow showed the general architecture of marrow, with no evidence of either amyloidosis or fibrosis. The operative wound healed normally in every respect. Treatment with rutin, ascorbic acid, and polyvitamins together with a high protein diet was continued.

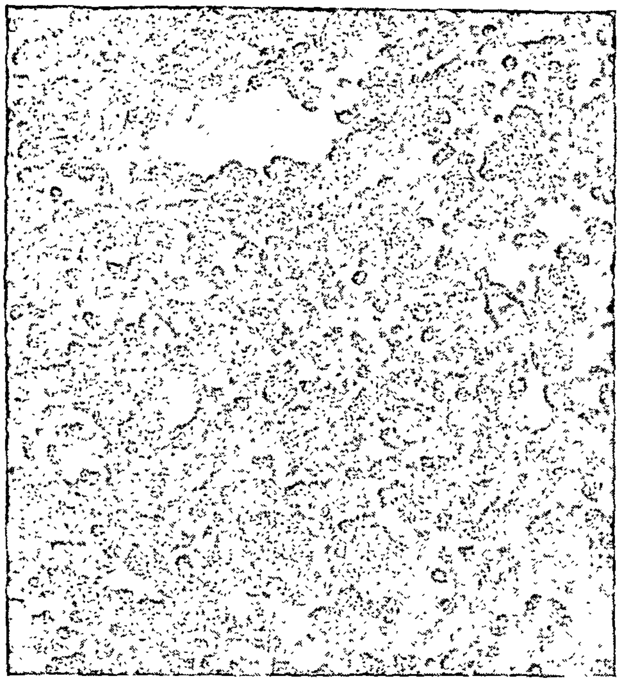


Fig. 1.—Biopsy specimen from spleen taken September, 1948. Note the megakaryocytes and hematopoiesis.

Three months later (December, 1948) the patient returned for reexamination. She stated that she felt improved with respect to her fatigue and general feelings. The weight was unchanged at 139 lb. The spleen was unchanged in size. Laboratory tests showed: hemoglobin 98% (16.5 gm.) (Sahli), red blood cells 5 million, white blood cells 8,800; blood smear, 68% segmented neutrophils, 2% staff form neutrophils, 28% lymphocytes, and 2% monocytes; platelet count 172,000; bleeding time 4 minutes; coagulation time 3 minutes 45 seconds. Quantitative test for albumin in the urine showed 1.8 gm. per liter. A sternal marrow biopsy was performed with a Turkel biopsy needle. Several plugs of tissue were obtained, and sections were made. These were reported to show a diffuse distribution of cells with little evidence of fat and absence of the usually encountered hematopoietic islands. There was suggestive evidence of hyalin material. Megakaryocytes were numerous but showed no platelet formation. The special amyloid stains were indefinite and not conclusive of the diagnosis.

The patient was seen again in March, 1949. The spleen was definitely larger. No enlarged lymph nodes were found. Laboratory tests showed: sedimentation rate 1 mm. per hour (Wintrobe); hemoglobin 102% (17.5 gm.) (Sahli); red blood cells 5,150,000; white blood cells 8,700, with 60% segmented neutrophils, 2% staff form neutrophils, 2% eosinophils, 32% lymphocytes, and 4% monocytes; bleeding time 2 minutes 45 seconds; coagulation time 9 minutes 40 seconds; and platelet count 276,000. Urinalysis showed specific gravity 1.020, pH 5, albumin 3+, and no reducing substances. The Congo red test showed 45% retention of the dye. The findings in June, 1949, were essentially similar to those already noted.

In September, 1949, she complained of some increase in fatigue, generalized "hurting" of the head, and mild mental fogginess. The laboratory findings were unchanged. The weight was 135 lb. (61.2 kg.) and blood pressure 156/90 mm. Hg. The spleen was definitely larger, the free edge now reaching to the umbilicus and left iliac crest. At this time there developed rather acutely an aseptic inflammation and edema of the right great toe with subsequent appearance of a necrotic ulcer on the plantar surface at the base. Priscoline (2-benzyl-2-imidazoline), rest, elevation, and plain sterile dressings were prescribed. The lesion healed completely in a few weeks. This was thought to be a vascular thrombosis. The laboratory and other findings were unchanged in November, 1949. She was hospitalized in January, 1950, for a mild case of acute bronchitis, which subsided in a few days. Penicillin therapy was begun. At this time the hemoglobin was 87% (13.5 gm.) (Sahli); red blood cell count 5,460,000; and white blood cell count 8,200, with 66% segmented neutrophils, 3% staff form neutrophils, and 31% lymphocytes. The nonprotein nitrogen was 36 mg. per 100 cc. The urine showed 2+ albumin. The chest roentgenogram showed some increase in bronchovascular markings.

Between January, 1950, and May, 1950, the patient noticed increasing weakness, fatigue, and anorexia. On May 5, 1950, she was admitted to the hospital because of persistent and uncontrollable nosebleed. A blood cell count showed hemoglobin 41% (6.6 gm.) (Sahli) and white blood cells 195,000, all classified as lymphoblasts. No mature neutrophils were seen on the entire slide (fig. 2). The urine was reported negative for albumin. In spite of blood transfusions, vitamin K, penicillin, and other supportive measures, the patient died on the third day.

The significant gross postmortem findings were reported as follows: 1. The spleen weighed 2,880 gm. The general configuration was not markedly changed from normal. The splenic notches were discernible. The capsule was smooth and glistening and showed numerous small pitted areas, ranging in size up to 0.5 cm. in diameter, and the surface was reddish-brown in color, showing a faint yellowish mottling. On cross section a dark reddish-gray slightly granular cut surface was present, in which the normal splenic markings were completely obliterated; however, a vague mottled pattern was seen in which the general basic reddish-gray color showed vague areas that were dark reddish-purple in color. 2. The liver weighed 1,680 gm. The external surface was smooth and glistening and a normal reddish-brown color. On cross section a granular reddish-brown cut surface was seen. A 2.0 cm. thin-walled cyst

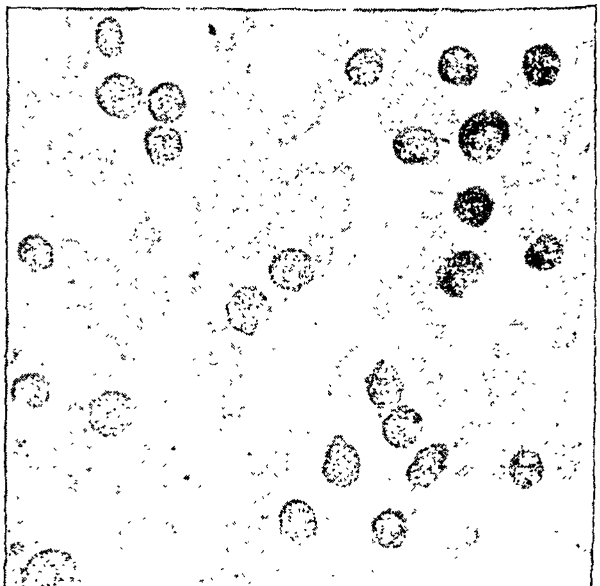


Fig. 2.—Smear of peripheral blood taken just before death in May, 1950. Note the numerous blast cells of myeloid origin.

filled with clear fluid was present in the lateral-most aspect of the right lobe. The right lobe also showed several worm-like streaks, which appeared to be either dilated bile canaliculi or dilated veins present on its anterior surface. These varied in size up to 0.1 cm. in diameter and measured as much as 2.0 to 3.0 cm. in length. They seemed to course immediately beneath the capsule. 3. The left kidney weighed 114.0 gm., and the right 122.0 gm. The capsule of each kidney stripped with moderate difficulty from a very granular pale pinkish-yellow to tan surface. On cross section the cortical-medullary demarcation was quite sharp. The cortex was pale tan in color and measured 0.7 cm. in thickness. The pyramids showed a rather marked paleness, and the pyramidal markings were less distinct than usual. There was no abnormality of the calices or pelvis.

Microscopic examination of tissue was reported as follows: 1. The general architecture of the spleen was completely replaced by a connective tissue stroma in which there were numerous leukocytic cells (fig. 3). These showed only a scanty amount of cytoplasm, and very few of them could be identified as to the cell type. Compared with the surgical material the appearance was quite different, the surgical material having been obtained in 1948. In this there were large numbers of megakaryocytes present. 2. The general architecture of the liver was fairly well preserved. The sinusoids obviously showed leukocytic cells, and in a few areas there were hematopoietic foci, none of which contained megakaryocytes. 3. In the kidneys there were a few small cortical scars. The tubular system was quite well preserved. The glomeruli all showed a variable degree of glomerulosclerosis with marked reduction in the vascularity. In the majority of instances there was a hyalin-like material deposited beneath the capillary walls not associated with inflammatory cell infiltration. There was no evidence of crescent formation and very little evidence of thickening of Bowman's capsule. In some instances the glomeruli contained a few rounded hyalin masses, but this was not a common finding. The arterioles were thick-walled and often showed hyalinization. A few of the medium-sized arteries showed hyalinization but very little endarteritis obliterans. There seemed to be no interstitial deposition of any hyalin material. Stains of the kidney with Congo red and crystal violet for the demonstration of amyloid were made and showed no evidence of amyloid. 4. Section of the rib showed that the normal bone marrow was almost completely replaced by leukemic cells. 5. Several lymph nodes showed foci of leukemic infiltration but not of hematopoiesis. Klatsch preparations of bone marrow showed that the majority of cells were blast forms but were associated with cells of the myeloid series; hence it was assumed that the cells were mostly myeloblasts. A review of the peripheral blood smear that was made during the patient's life also shows that the majority of these were blast forms and were probably myelogenous instead of lymphogenous.

COMMENT

The end-phase of this case as indicated by the peripheral blood with marked anemia, thrombocytopenia, and a very high white blood cell count with almost 100% blast forms, as well as the evidence of leukemic infiltration into the bone marrow, lymph nodes, spleen, and liver, seems to be indistinguishable from myelogenous leukemia. However, during the intermediate phase of 20 months' direct observation there was more or less polycythemia, a normal or slightly leukemoid picture of the white blood cells in the peripheral blood, apparently myelofibrosis, no evidence of leukemic infiltration of any organs, and characteristic myeloid metaplasia of the spleen. We thought that we were dealing with a typical case of agnogenic myeloid metaplasia until the change in the peripheral blood appeared during the last days of the patient's life. Primary amyloid disease was considered for a time because of the marked albuminuria without other evidence of nephritis, the positive Congo red test, difficulty in aspirating cellular elements from the bone marrow on repeated attempts, and the suggestive hyalin material in the original biopsy of the spleen. Subsequent events and findings caused us to discard this diagnosis.

The medical literature of the past 10 years indicates a difference of opinion as to the relation of agnogenic myeloid metaplasia to leukemia. Block and Jacobson [1] in their excellent review of the subject and Jackson, Parker, and Lemon [2] earlier indicate that, while myeloid metaplasia is a syndrome of varied cause, it is to be sharply distinguished from leukemia because of the apparent marked difference in prognosis and treatment.

The case presented here certainly qualified as one of agnogenic myeloid metaplasia for many months and was treated as such, but we could hardly avoid the diagnosis of leukemia after making the terminal clinical and necropsy observations. We call attention particularly to the marked change in the microscopic appearance of the sections of spleen taken at necropsy from those taken at biopsy 20 months earlier. Practically all evidence of myeloid metaplasia had disappeared, and there was a diffuse fibrosis and leukemic infiltration at the time of necropsy.

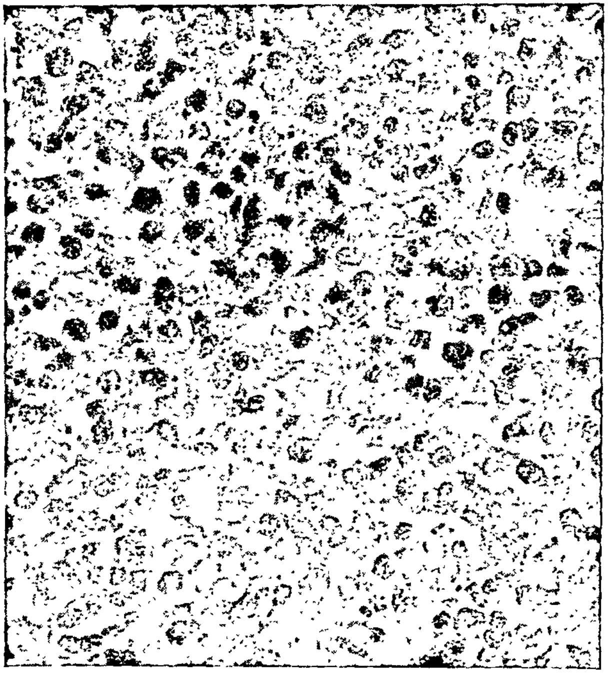


Fig. 3.—Postmortem specimen from spleen in May, 1950. Note the rare megakaryocytes and replacement of general architecture by leukocytic cells on connective tissue stroma. Compare with biopsy specimen taken September, 1948.

One of us (J. R. S.) has not uncommonly found patients with a full-blown leukemia who seem to have an unusually dense marrow cavity, in which difficulty is encountered in aspirating any cellular elements, and others in whom there has been practically no infiltration of any of the parenchymatous organs, the only major involvement being the bone marrow and the blood. In some instances even the peripheral blood shows very little change.

---

1. Block, M., and Jacobson, L. O.: Myeloid Metaplasia, J. A. M. A. **143**: 1390-1396 (Aug. 19) 1950.

2. Jackson, H., Jr.; Parker, F., Jr., and Lemon, H. M.: Agnogenic Myeloid Metaplasia of the Spleen: A Syndrome Simulating Other More Definite Hematologic Disorders, New England J. Med. **222**: 985-994, 1940.

We do not hope to resolve any controversies about the fundamental nature of myeloid metaplasia or of leukemia on the basis of this one case. We present it simply as an unusual case of apparent leukemia with an early course, which was like that described for agnogenic myeloid metaplasia. After all, not many cases of leukemia are observed from a time before their apparent onset till their final termination. Perhaps this will serve as some evidence of what leukemia may be like in its earliest stages and perhaps some evidence of what may happen ultimately to some cases of agnogenic myeloid metaplasia.

SUMMARY

The case of a 60-year-old white woman is presented who showed the characteristic findings of agnogenic myeloid metaplasia during a period of about 20 months' observation and then the characteristic findings of leukemia just before death and in the postmortem studies.

826 Medical Arts Bldg. (Dr. Long).

NEAR FATAL REACTION TO SULFOBROMOPHTHALEIN (BROMSULPHALEIN) LIVER TEST

Leon V. McVay Jr., M.D., Memphis, Tenn.

The determination of sulfobromophthalein (Bromsulphalein) retention is one of the most commonly employed hepatic function studies. Its importance in the diagnosis of liver disease is generally recognized. This procedure has been designated, and is widely regarded, as the most valuable of the excretory tests of liver function.[1] While several mild allergic reactions to sulfobromophthalein have been reported, only a few serious effects have been observed.[2] The purpose of this paper is to describe a near fatal reaction to this laboratory procedure and to suggest certain precautions in its use.

REPORT OF A CASE

A 68-year-old Negro man was observed in the antibiotic clinic of the John Gaston Hospital and the University of Tennessee College of Medicine on April 28, 1952. Since Feb. 17, 1949, this patient had been observed by the general medicine clinic because of arteriosclerotic heart disease, with cardiac insufficiency. Medication had consisted of digitalis, ammonium chloride, low sodium diet, and occasional administration of mercurial diuretics. There was no personal nor familial history of allergy.

On Jan. 14, 1952, this patient was selected as one of 450 geriatric patients who were being studied with regard to the effect of prophylactic antibiotic therapy on intercurrent infections. As a portion of this investigation, a series of hepatic function determinations, including the sulfobromophthalein test, were carried out at regular intervals. The test was performed on Jan. 14, 1952, with 10% retention at 45 minutes. No untoward side-effects were caused by this procedure.

On April 28, 1952, 5 mg. of sulfobromophthalein per kilogram of body weight was again injected intravenously. Approximately three minutes were required for the administration of the dye. As the needle was being withdrawn, the patient complained of dyspnea and became quite apprehensive. He described a severe choking sensation and, in two to three minutes, was covered with cold perspiration. In addition, the patient complained of generalized pruritus of extreme severity and, while no epigastric or abdominal pain was present, vomited twice. In less than five minutes, the cardiac rate increased from 94 to 136 per minute. The blood pressure, which had been recorded as 110/82 mm. Hg 15 minutes prior to the intravenous injection, dropped to 72/64 mm. Hg 5 minutes after the dye had been administered and was 68/48 mm. Hg shortly thereafter. A comatose state rapidly developed. Pulmonic examination revealed a few inspiratory rales in the bases of both lungs.

The patient was immediately placed on an examining table in the clinic, his feet were elevated, and oxygen was administered by nasal catheter. Five-tenths of a milliliter of epinephrine hydrochloride in 1:1,000 solution was injected subcutaneously with no apparent result; injection was repeated using 0.3 ml. at five minute intervals on four occasions. Despite the injection of epinephrine, the blood pressure, 15 minutes after the onset of the episode, was 56/40 mm. Hg; however, within 30 minutes it had increased to 78/64 mm. Hg. The comatose state persisted for approximately 30 minutes; for an additional 10 to 15 minutes, the patient was disoriented as to time, person, and place. Approximately two hours after consciousness was regained, the blood pressure was 112/68 mm. Hg. The patient was, however, extremely weak and was admitted to the medical service of the John Gaston Hospital for observation.

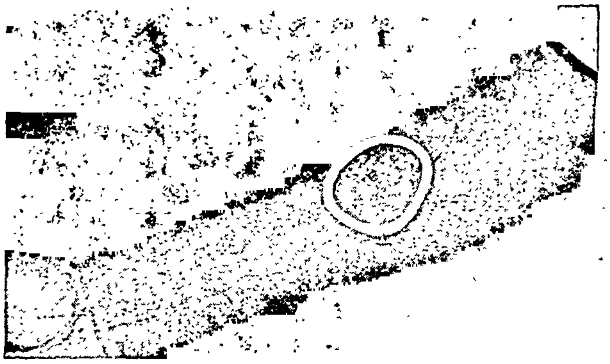


Fig. 1.—Intradermal reaction to sulfobromophthalein 10 minutes after injection. Area of erythema measures 4.5 by 6.5 cm.

On hospitalization, the only complaint was weakness; extreme apprehension also persisted. Physical examination revealed no pertinent findings. The white blood cell count was 26,100 per cubic millimeter, with 84% polymorphonuclear leukocytes and 16% lymphocytes. Four hours after admission, a low grade fever developed and persisted for 24 hours. It reached a maximum of 100 F (37.8 C). Serial electrocardiograms were not revealing, and peripheral blood values returned to normal in 72 hours. The patient was discharged from the hospital on the fourth day in an asymptomatic condition and with no evidence of sequelae.

On his return to the antibiotic clinic, it was decided to omit the sulfobromophthalein determination from his future studies; however, on Jan. 15, 1953, an intradermal skin test was carried out. Sulfobromophthalein was diluted with equal parts of isotonic sodium chloride solution, and 0.1 ml. of this mixture containing 2.5 mg. of the dye was injected into the volar aspect of the right forearm. Sodium chloride solution alone was injected into the left forearm. Within 10 minutes, an irregular area of erythema was present on the right forearm; this measured 6.5 by 4.5 cm. (fig. 1). Furthermore, the patient noted minimal dyspnea and a slight choking sensation that persisted for 5 to 10 minutes. Aside from mild localized pruritus at the site of the lesion, nothing else was observed. No change was apparent about the site of the control injection. During the ensuing two days, the reaction around the intradermal injection of dye increased progressively and reached maximum

---

From the Division of Medicine, University of Tennessee College of Medicine, and the John Gaston Hospital.

[1] Greene, C H.: Liver and Biliary Tract: Survey of Tests for Hepatic Function; Use of Hepatic Star in Differential Diagnosis of Jaundice, Arch. Int. Med. 86: 743-788 (Nov.) 1950.

[2] (*a*) Chambers, W. N., and Moister, F. C.: Bromsulfalein Reaction, Am. J. Med. 5: 308-310 (Aug.) 1948. (*b*) Morey, G.; Gabuzda, G. J., and Scudamore, H. H.: Sensitization to Bromsulphalein (Phenoltetrabromphthalein—Disodium Sulfonate), Gastroenterology 13: 246-249 (Sept.) 1949. (*c*) de Andino, A. M., Jr., and McKeown, J. J., Jr.: Unusual Toxic Reaction to Bromsulfalein, Ann. Int. Med. 34: 1265-1269 (May) 1951.

intensity at 48 hours (fig. 2). At that time, the entire right forearm was greatly swollen. The diameter of the midportion of the right arm was 11.5 in. (29.2 cm.), while that of the left arm was 9.5 in. (24.1 cm). The involved area measured 24.5 by 13.5 cm., was erythematous and slightly tender, and was surrounded by an irregular serpiginous border. Necrosis occurred at the location of the injection. Tender axillary and epitrochlear adenopathy was present. For three days, the patient noted a slight bitemporal headache, with associated malaise. A low grade fever fluctuating from 99 F (37.2 C) to 99.8 F (37.7 C) was also present during this period. Gradual remission began after 48 hours, while return to normal required seven days. No medication was administered.

COMMENT

Since its introduction by Rosenthal and White in 1924,[3] the sulfobromophthalein test has undergone several modifications. In 1925, its originators recommended the intravenous injection of 2 mg. of dye per kilogram of body weight, with a blood specimen being obtained after 5 and 30 minutes.[4] Mateer and his associates [5] suggested that 5 mg. per kilogram of body weight be employed in order to furnish a more adequate test of hepatic reserve. Later investigators emphasized the value of increased retention of sulfobromophthalein in establishing the diagnosis of chronic hepatitis in the absence of jaundice.[6] Its importance in detecting early cirrhosis has been frequently demonstrated.[7] Recently, a significant correlation between the degree of sulfobromophthalein retention and diffuse liver cell damage was reported.[8] It is now generally recognized that retention of more than 6% of the dye 45 minutes after the intravenous injection of 5 mg. per kilogram of body weight is indicative of liver cell damage. The test, however, is of value only in the absence of conspicuous jaundice.

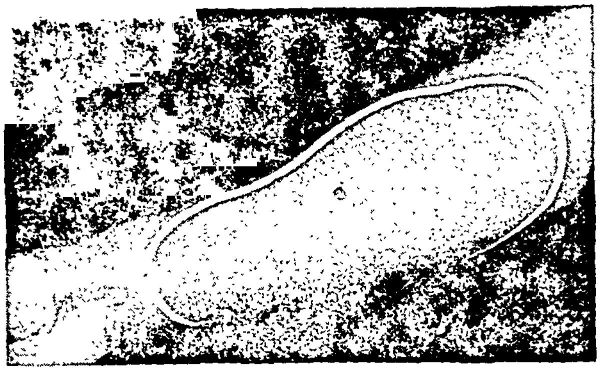


Fig. 2.—Intradermal reaction to sulfobromophthalein injection at 48 hours. Necrosis is present at the site of injection. The area of involvement measures 13.5 by 24.5 cm.

At present, the sulfobromophthalein test is one of the most commonly employed hepatic function studies. Several factors have contributed to its widespread popularity; the dye is soluble, its solution is rather stable, it is not overly irritating to the tissues, and it is only very rarely a cause of venous thrombosis. In 1950, Greene [1] concluded that sulfobromophthalein had generally become recognized as the substance of choice as an excretory test of hepatic function.

While occasional mild allergic manifestations have been noted with this test, the first severe toxic reaction was not observed until 1946,[2a] when an acute allergic response occurred in a patient known to have bronchial asthma. Another serious reaction was observed in 1951.[2c]

The case described in this paper emphasizes the potential danger of this laboratory procedure. It would appear that, if a patient has previously been subjected to a determination of the sulfobromophthalein retention, an intradermal test should be carried out before it is repeated. This would seem to be especially indicated if there is a history of allergy. In all instances, the dye should be administered cautiously over a period of at least five minutes.

SUMMARY AND CONCLUSIONS

A near fatal reaction to the sulfobromophthalein (Bromsulphalein) liver test is described. The case reported provides evidence that this widely employed laboratory procedure is not entirely innocuous. Certain precautions in its use are recommended.

1304 Government St., Mobile, Ala.

3. Rosenthal, S. M., and White, E. C.: Hepatic Function: A. The Pharmacological Behavior of Certain Phthalein Dyes; B. The Value of Selected Phthalein Compounds in the Estimation of Hepatic Function, J. Pharm. & Exper. Therap. 24: 265-288 (Nov.) 1924.

4. Rosenthal, S. M., and White, E. C.: Clinical Application of the Bromsulphalein Test for Hepatic Function, J. A. M. A. 84: 1112-1114 (April 11) 1925.

5. Mateer, J. G.; Baltz, J. E.; Marion, D. F., and MacMillan, J. M.: Liver Function Tests: General Evaluation of Liver Function Tests and Appraisal of Comparative Sensitivity and Reliability of Newer Tests, with Particular Emphasis on Cephalin-Cholesterol Flocculation Test, Intravenous Hippuric Acid Test and Improved Bromsulphthalein Test with New Normal Standard, J. A. M. A. 121: 723-738 (March 6) 1943.

6. Barker, M. H.; Capps, R. B., and Allen, F. W.: Chronic Hepatitis in the Mediterranean Theater: New Clinical Symptoms, J. A. M A. 129: 653-659 (Nov. 3) 1945.

7. Seife, M.; Kessler, B. J., and Lisa, J. R.: Clinical, Functional and Needle Biopsy Study of the Liver in Alcoholism, Arch. Int. Med. 86: 658-670 (Nov.) 1950.

8. Popper, H., and others: Correlation of Liver Function and Liver Structure, Am. J. Med. 6: 278-291 (March) 1949.

TWENTY PER CENT CARBON DIOXIDE INHALATION IN MUSCULAR RIGIDITY

INDICATIONS AND CONTRAINDICATIONS

Temple Fay, M.D., Philadelphia

Inhalation of a mixture of 20% carbon dioxide and 80% oxygen as a diagnostic and therapeutic measure in certain types of rigidity and manifestations of dystonic disorders has been used for the past 12 years. In view of the sudden and rapid adoption of this procedure by physicians and physical therapists for certain neuromuscular types of dysfunction, popularly known as "cerebral palsy," a brief survey of the basis for the use of this procedure, of its presently known values, and of definite contraindications to its use is in order.

Since the report in 1952 of clinical observations [1] on the use of this procedure, various reports of success or failure with this method have appeared in this country and abroad. It must be realized that, as yet, the physiological bases for the surprising and often startling changes that immediately occur, and often are sustained, are poorly understood; therefore, promiscuous use of the method by any other than enlightened medical advisors or skilled anesthetists is to be deplored. Final evaluation of the method can rest only on critical analysis of large series of patients. It is not the purpose of this communication to deal with the detailed study and background that led up to the clinical use of 20% carbon dioxide inhalation for certain carefully selected types of neuromuscular involvement, much of which has been reported elsewhere or remains to be published. A sketch of the background and basis for the use of this method is, however, appropriate for the sake of orientation, as are remarks on its possible effectiveness as an adjunct to the present therapeutic methods.

---

[1] Fay, T.: Effects of Carbon Dioxide (20%) and Oxygen (80%) Inhalations on Movements and Muscular Hypertonus in Athetoids, Tr. Am. Neurol. A., 1952, p. 225.

BACKGROUND

It has long been known that certain manifestations of rigidity in postencephalitic and decerebrate states or of rigidity of mixed origin disappear during sleep, with relaxation and even cessation of repetitive gross tremors and movements. A similar state ensues during periods of restful relaxation in certain well-known, clinical types of torticolis. The question arose about 12 years ago why these desirable periods of freedom from the distressing tonic and hyperkinetic states should occur, even though it has long been recognized that the pathological condition in the central nervous system is a fairly constant and fixed process. At first it was assumed that "sleep," with its indefinable physiological qualities, was responsible for this neuromuscular relaxation state. It was obvious that, if the patient could be given appropriate therapy and treatment during such relaxed phases, much might be accomplished in the training of better control of finger, hand, arm, leg, neck, and facial movements. In other words, if the qualities of consciousness and activity could be retained and at the same time the relaxation present during sleep maintained, many benefits would be obtained through corrective therapy.

Close clinical study of the problem indicated that respiration was involved in some direct manner and that hyperventilation was present during the active periods of wakefulness (i. e., crying, movement, and explosive speech). It was felt that this factor, superimposed on the primary disease of the nervous system, might lead to accentuation of undesirable symptoms during conscious periods. This clue suggested the possibility that hyperventilation, with its known hypertonic effect on muscle tone (tetany) and its tendency to produce alkylosis (loss of carbon dioxide), might be an important factor.

Momentary correction of chronic carbon dioxide lack was considered as a possible diagnostic measure to evaluate the muscular effects of carbon dioxide deficiency (hyperventilation component) in order to distinguish between the effects of this phenomenon from the intrinsic neurological alteration of function arising from the central lesion. The vasodilator effects of carbon dioxide on cerebral vessels, noted by Schmidt, and the psychomotor relaxation states produced by inhalation of 10% carbon dioxide, observed by Meduna, led to the selection of a 20% concentration of carbon dioxide for use in this procedure. It was found that this concentration is sufficiently intense to produce a physiological effect without producing loss of consciousness. When levels of 25 to 30% or higher are administered, loss of consciousness may ensue.

Eight years ago, it was repeatedly observed that inhalation of a mixture of 20% carbon dioxide and 80% oxygen for one to three minutes by patients manifesting true rigidity produced immediate and surprising reduction in muscle tone and facility of movement, with a tendency toward a smoother more coordinated type of response than had previously occurred with any other procedure or drug. After this procedure, the patient was capable of understanding and responding to commands, often could perform many movements formerly impossible for him to perform, and had better use of the muscular structures during the short period of inhalation. It was anticipated that the effects of this procedure would be only diagnostic (to confirm the presence of true rigidity as distinguished from spasticity), and that the response would be only temporary. The surprising clinical result was that the effects in many instances persisted as long as three weeks after a single inhalation, with striking alteration in the previous neuromuscular tone and response.

The effects and details of this response and the explanations for it have been studied over the past four years and have been reported elsewhere.[2] Particularly interesting was the question of why the brief inhalation of concentrated carbon dioxide should produce a sustained clinical state of improvement, even though the pathological process was known to be chronic or more or less fixed. No adequate or acceptable physiological explanation has been established, although discussion and speculation are increasing. Yet, the fact remains that improvement has been sustained in patients with certain types of disease for periods exceeding three years, when fortified by the appropriate physical therapeutic measures now available. One inhalation episode or subsequent episodes given weekly, monthly, or even semiannually have altered the previously distressing state to the satisfaction of the patient and the clinician, even though long established structural alterations that require orthopedic correction remain. Increase in facility of movement and sustained states of relaxation have made possible self-feeding, walking, better speech expression, and additional self-care, which formerly were impossible, and these favorable changes have been noted not only in infants and children but also in young adults and, to some degree, in older persons.

INDICATIONS

In my experience, the best results have been obtained in cases of the true types of rigidity (Parkinsonian and athetoid), and these must be clearly differentiated from the spastic and other structurally handicapping types. Currently, the clinical manifestations used to distinguish the rigidity group are a hypertonic state of the muscles in which, in the absence of fixation or chronic contracture, there is a slow sustained resistance of the muscles to stretch, often described as "lead pipe" rigidity, or a more jerky form of resistance of the muscle to stretch, commonly known as "cog wheel" rigidity. When there is impairment of coordinated movement or postural fixation of the extremities due to hypertonic muscular states, a so-called paralysis (paralysis agitans) results. In many athetoid patients and patients with postencephalitic parkinsonism, intellectual abilities are not impaired, even though expressive motor facility may be greatly altered. The relaxed states obtained with carbon dioxide inhalation are of real benefit to patients in this group, because muscular responses formerly impaired are more easily augmented by properly directed physical therapy and muscles formerly "frozen" can thus be utilized.

---

[2] The reports, which are to be published, were read before the Danish National Society of Physical Medicine, Copenhagen, 1951; the American Neurological Association, Atlantic City, N. J., June, 1952; the American Academy for Cerebral Palsy, Durham, N. C., October, 1952; and the Orthopedic Club, Philadelphia, March, 1953.

It became obvious that an increase in endogenous carbon dioxide from metabolism of carbohydrates or alcohol or from an increase in the volume of residual air in the chest, as well as an increase from carbon dioxide inhalation, improves neuromuscular function, and these longer acting adjuncts were added to the therapeutic armamentarium. Patients who manifested relaxation during sleep and who responded favorably to the carbon dioxide inhalation test were placed on maintenance regimens, which include regular breathing exercises to increase the chest volume and residual air component, and holding the breath with proper exhalation, which, in turn, improves carbon dioxide metabolism, so that the patients may retain a state of increased carbon dioxide availability at all times.

CONTRAINDICATIONS AND PRECAUTIONS NECESSARY

The clinical response, although great in some patients, was slight in those who had neuropathological lesions or contractures of muscles and tendons, who did not cooperate, or in whom alteration of the carbon dioxide factor was not possible. Nevertheless, word of the value of the procedure has been spread so rapidly by persons who have been helped that little attention has been paid to the failures that occurred or the contraindications to its use.

Inhalation of 20% carbon dioxide and 80% oxygen should be used chiefly in patients with rigidity, although it should be realized that patients with some other conditions (such as those with the spastic, mixed, and as yet unclassified dystonic disorders with lack of coordination) may show a favorable response. No benefit whatever can be expected in patients with intrinsic, fixed, pathological lesions in whom normal relaxation does not appear during sleep or during the inhalation test.

It is important that the gas mixture used be pure. Some easily obtainable commercial forms of concentrated carbon dioxide retain irritative by-products and chemical agents from the production process. If used, such forms must be purified. Carbon dioxide used in ordinary hospital anesthesia may be used. Irritation, coughing, and spasm may result from use of the impure material.

Hyperpnea occurs during carbon dioxide stimulation of respiration. It is, therefore, highly important that the patient be carefully examined for disease of the lungs or chest in which temporary overexpansion may cause stretching, rupture, or tearing of adhesions. Careful cardiac studies and blood pressure determinations should be made before administration of the mixture, because holding of the breath, alterations in heart function, and some hyperkinetic movement arising during the procedure may lead to undesirable cerebral involvement. As yet, these complications have not occurred in my series, but if the mixture is carelessly administered, without proper medical and anesthetic supervision and if the proper precautions are not taken, they could easily occur. In the presence of an aneurysm, extreme arteriosclerosis, or a progressive brain lesion, which only careful neurological study can rule out, the procedure is definitely contraindicated. The usual postanesthetic care and observation of the patient must be maintained for at least a few hours. Finally, it must be remembered that the 20% carbon dioxide inhalation test should be considered a diagnostic procedure by which the degree of muscular rigidity can be shown and the indications for medical and physical therapy established.

BASIC MECHANISM

At present, it is possible to offer only a suggestion of what carbon dioxide inhalation may accomplish. It is obvious that it can in no way alter the primary neuropathological condition. Whatever effect it has must be secondary to some profound change in cellular function, caused either directly or indirectly by the gas itself. It is possible that a high local concentration of carbon dioxide would result in a shift of the pH to a more normal value, even though temporarily, or that carbon dioxide acts indirectly on some intrinsic cellular function that still exists within the nervous system and is capable of response. In my opinion, it is reasonable to assume that chronic hyperventilation states exist during the waking hours and in some way impair the function of the remaining neurological units that govern muscle response and activity either at the peripheral or at the central level. (One cannot escape the possible consideration that the respiratory cycle of so-called sleep is a more primitive and automatic mechanism than the modifications of inhalation-expiration that arise during awakened states.) It is possible that electrodynamic factors (cellular polarity and function) are altered when carbon dioxide in high concentrations shifts the pH sufficiently to produce action similar to that of acid in a storage battery. As a result, single cells or groups of cells would extend their functional activity to control wider neurostructural areas at beneficial levels. This mechanism would be analogous to that of the dial telephone, which, as a single unit, is capable of setting up a series of action currents or of connecting stations along a single hook-up. Thus, these cells are made capable of affecting a larger organized group of cortical or basic units, and finally neuromuscular activity is modified in its peripheral manifestations.

Obviously, this concept must be subjected to rigid further analysis, but it serves at the moment to explain an improvement in expressive function, even in the presence of deficient central control. That a single cell or fiber can function to carry a variety of impulse cycles is already recognized. It is possible that neural basal ganglion cell units, limited to almost a single activity or to insufficient activity by local disease or by metabolic neurodynamic functional loss due to chronic carbon dioxide lack, can be restored by repolarization to more normal levels of activity, i. e., to the handling of an increasing number of component cortical factors to an increasing degree. It is possible, also, that this increased activity may take the form of better neuromuscular response.

SUMMARY

It has been observed and is now fairly well established that brief inhalation of a mixture of 20% carbon dioxide and 80% oxygen in certain patients manifesting true rigidity produces prompt neuromuscular relaxation and changes in movement facility. It is believed that such a state, often seen in these patients during sleep, is due to a better metabolic adjustment to carbon dioxide. In the awakened state, chronic hyperventilation and carbon dioxide lack result in superimposition of hyperventilation phenomena on the effects of the original lesion, which becomes apparent as grossly incoordinated movement, neurointrinsic tremor (arising from neural units or levels, as distinguished from muscular, metabolic or emotional types), and hypertonic rigid muscular states (tetany). It is believed that sustained alteration is possible in patients in whom the inhalation test has shown that relaxation may be obtained, and maintenance therapy is given to correct the carbon dioxide deficiency directly or indirectly.

There are important contraindications to the promiscuous use of this procedure, which requires further observation and clinical analysis. It is important that it is recognized that, in patients in whom relaxation does not occur during the observed "sleeping period" or in whom a definite response is not observed during or after the inhalation test, the further therapeutic use of this procedure will be of little value. Therefore, such therapy should not be instituted without full realization of its limitations. When favorable test responses occur, prompt advantage of this temporary phase should be taken by active physical therapy measures and enhancement of body facilities for carbon dioxide elaboration and retention. the presence of coincident thoracic, cardiac, or cerebral disease must be ruled out before the test is administered.

Finally, the same careful care and control of the method must be maintained as has already been established for administration of any gas anesthetic. Judgment of the value of the procedure must rest on wider clinical experience, and explanations for its apparent beneficial effects must await further neurophysiological analysis.

8800 Germantown Ave. (18).

Radioisotopes.—There has been developed . . . an extension [of use of radioisotopes] which goes one step beyond pure mechanical placement. . . . It demands that an organ of the body do some metabolic work in achieving the end localization. . . . Many isotopes have been tested for their metabolic pattern in tumor tissue. . . . Some give no localization; some localize in critical tissues, some give fair localization but have poor energy characteristics. Others have the wrong half life. There was one rare example and probably no other simple element will be found which matches the promise of radioiodine. . . . The future usefulness of the metabolic positioning of radiation depends wholly upon research in basic tumor chemotherapy. . . . Most ideas in tumor chemotherapy have been complete failures. It is to be expected that most of our present and future ideas will also fail; but if one ever is successful, there are about 30 radioisotopes which have good radiation characteristics and may be attached to the molecule. Even though it has been a continuous source of disappointment, in this sense the metabolic placement of radiation is still the greatest challenge in the field of therapeutic radioisotope research.—M. Brucer, M.D., Encouraging and Discouraging Research with Therapeutic Radioisotopes, *Journal of Kentucky State Medical Association,* June, 1953.

SPECIAL ARTICLE

ORGANIZING A HEALTH MUSEUM

SUGGESTIONS BASED ON CLEVELAND HEALTH MUSEUM EXPERIENCE

Deac Martin, Cleveland

Although our country's health consciousness is widespread, it is not uniform. In some communities it is spread more thinly than in others. In either case, a health museum can be a rallying point for what already exists in community health projects, and beyond that it can be an instigator of new projects that will thicken, lengthen, and strengthen health consciousness by interesting more persons in guarding and improving their personal health.

This paper about health museums is written for physicians who agree that the medical profession is the natural leader in health education and who may be seeking means to live up to this responsibility and privilege. The conclusions reached are derived from association with the Cleveland Health Museum since it was a nebulous idea in 1939, three years after its incorporation by three members of the Academy of Medicine of Cleveland, its secretary, and the secretary of the Cleveland Health Council. Lacking precedent, these men had faith but no actual knowledge of what might be the future developments. As it has turned out, the original objectives are as sound today as they were in 1936, but methods of reaching them go beyond the founders' conceptions. Conclusions learned along the way by trial and error can furnish pointers, though not a pinpointed plan, for establishment of health museums elsewhere.

As evidence of national interest in health education, among the 1952 visitors who came to the Cleveland Health Museum from every state and 27 foreign countries, a satisfying number asked about ways to start a comparable project. The fact that these persons were impressed enough to want to "do likewise" is a good indicator. Others, especially foreign physicians, were at the museum to study the pioneering project in order to report on this means of mass health education. In addition to these personal contacts, the museum receives letters; the following excerpt of one such letter, dated in mid-1952, is typical: "I think our city needs a health museum but I do not know what to do about it, whether the county medical society, the county health forum, the city manager, or what person or group should be approached. Is it approved only by Protestants . . .?" Answering the direct question first, Director Bruno Gebhard assured the writer that all denominations utilize the museum and that its department of education, directed by Dr. Winfield G. Doyle, works closely with parochial as well as public school systems. No direct answer could cover the implied question about which local group should be approached to pilot a health museum move-

---

Public Relations Consultant to Cleveland Health Museum since its inception.

ment, because conditions vary widely in different cities. Any of the persons or groups mentioned, or others, may be successful as the bellwether.

FIRST STEPS

The feeling "we ought to do something for our town" is widespread enough to furnish evidence that some of the seed sown by the Bureau of Health Education of the American Medical Association and by localized medical groups has taken root. Education by special interest organizations, of which the National Tuberculosis Association is an early example, and by basically commercial organizations, such as life insurance companies, has constituted part of the movement. The bureau has pointed to the advertising of citrus fruit as an accelerator to the burgeoning national interest that is back of the financial support of health organizations and foundations by popular contribution.

Among the out-of-town persons and groups seeking methods at the Cleveland Health Museum have been representatives of the Minneapolis Junior Chamber of Commerce; the County Medical Society of Los Angeles; the Pittsburgh Junior League; the Lankenau Hospital, Philadelphia, which will receive further comment later; a banker from Sacramento, Calif.; a registered nurse from Kansas City, Mo.; and interested persons, including physicians, from the British Isles, Australia, China, Ceylon, and Quebec. The first such investigation in the early 1940's resulted in the health museum at Mexico City; next came one in Colombia, South America, and the Dallas Health Museum, which was launched by the Dallas Academy of Medicine and the county medical society in an attractive gray stone building well suited for museum use on the Texas state fair grounds. Medical and public health exhibits, such as those in the Buffalo Science Museum, the Toledo Museum, the Museum of Science and Industry in Chicago, the Army Medical Museum, and in institutional museums, such as that in the Mayo Clinic, in some cases are integrated into already established institutions whose primary interest may not be health education. A health museum need not be an unrelated unit. Also, the physician knows best that all of mankind's physical giants started from tiny embryos, and even a store window of health exhibits is a start.

Basically, a health museum stands on a tripod consisting of (1) space, (2) finance, and (3) a program. The three need not be considered in that order; for example, under "financial angels" below, finance is assured ahead of space or a program.

Financial "Angels."—1. An "angel," rather than the stork, could bring the baby into being through a large single gift, probably as a memorial. Naturally, such a giver may have ideas on how the gift is to be utilized. It is possible that the donor has a specialized interest, usually owing to some intimate experience, and wants the program centered around that main interest. If health education in the community may be aided by a main exhibit or hall devoted to diabetes, poliomyelitis, or the heart, for example, with a periphery of other helpful subjects, why should this not be done? 2. Perhaps several leading industries with employee health problems may finance the project. The acceptance and utilization of any large gift should be safeguarded, community health-wise, by a board of trustees, which should include physicians with the interest and time to see that the teachings are sound.

Professional Sources. — 1. The museum may spring from group activity and financing by the local medical society. In such a case, it is reasonable to assume that several physicians may find several patients willing to contribute and that the financial burden will not rest entirely on the society's members. Yet, if started in a small way, it may well be done without outside assistance. Costs will be discussed elsewhere. 2. The physicians may bring a health museum into being by working with some already established agency, such as the city health department or a health council or its equivalent.

Physical Equipment Approach. — Early activity may center around a building or space available. A well-endowed hospital may furnish space, or build a wing, while the physicians would provide the financing of exhibits and the program. The hospital may furnish space and finance the entire physical project, while the physicians furnish the program.

Community Approach.—The physicians could become the nucleus of a civic organization organized along Community Chest lines for fund raising. In the old days, the physician was the local public health authority and center of community health activities. In furnishing the spark to ignite public interest in a new health museum, the physician would reinstate himself in his old role. Funds could be raised from the public by means of memberships or contributions or both. "And why not?" queries Dr. Gebhard, "The artists do not build, equip, and furnish an art museum!"

There are other ways to get started, depending on local conditions, and combinations of several or all of the methods described are possible. Whatever the start may be, it is most desirable that the project be tied closely to widely respected physicians to impress the public with the authenticity of the information center and as evidence of professional interest in preventive medicine.

The first steps, therefore, consist actually of sales work, the convincing of key persons best able to be helpful. If the project should develop along lines calling for widespread support, the sales job may become comparable to door-to-door selling; lay committee members could canvass the community with Community Chest techniques. Thus far, Cleveland Health Museum has not gone to the public for support other than through the work of a membership secretary, quite different from an organized, high-powered "drive." The museum has grown in relation to performance, a natural growth. This aspect may differ in different communities, but, in general, it is safest to promise financial supporters less than is actually delivered. Originally, the Cleveland museum membership was almost entirely composed of physicians and dentists. Lay membership has multiplied five times since 1940 and now stands at about 1,300, compared with 800 physicians and dentists. The lay membership developed mostly from the personalized approach. Members of the board of trustees in some cases have even made their Christmas card lists and, of course, the use of their names available to the membership secretary.

FINANCIAL ASPECTS

Costs and financing of a health museum, initiated by any of the means already described or by others, cannot be blueprinted in this general comment. A project fortunate enough to have a home, upkeep, and perhaps some personnel offered to it at the beginning is in a quite different position than one that must consider these fundamentals along with the added financing of exhibits and a program. Nevertheless, we do have an indicator. When it opened in November, 1940, Cleveland's health museum had a home, a reasonably sure income of about $8,000 from physicians, dentists, and others who had pledged $10 annual memberships when and if opened, and a 1941 budget of $25,000 for which there was no guiding American experience. That first budget equalled about what a state society would pay today for one motion picture with sound.

The 1952 budget was $103,000 in round numbers. Because of the need for additional space, especially larger lecture hall facilities, and because of programs that would be possible through instigation by the museum and by unexpected requests from other sources, the 1952 budget appears less adequate to me than did the original one when we had nothing with which to make comparisons. This is not a statement of frustration but one indicating experience, and it serves to point up Dr. Gebhard's statement that stems from museum experience both in this country and in Europe: "A good museum is never finished." The moral to some local group, thinking in terms of a place for visual health education over a period of years, is obvious. The following tabulation shows the highlights of the 1941 budget, which the individual local groups might divide or multiply by whatever figure changes $25,000 into a realistic amount for the local situation; it is shown in comparison with the 1952 budget:

	1941	1952
Administration	$12,000	$ 22,000
Operations	4,800	21,000
Promotion-membership	3,700	16,500
Exhibits	4,200	27,000 *
Education	300	16,500
	$25,000	$103,000

---

* Includes building exhibits for others.

The 1941 budget was predicated on a schedule in which the museum was to be open 6 hours daily on week days and 2 hours on Sunday, a weekly total of 44 hours. In 1952 the museum was open 59 hours weekly. Sunday is the big day in attendance. Nights are preferred by some groups and, to a lesser extent, by some persons. The greater the number of hours open, the higher will be the light, heat, maintenance, and upkeep bills. It is wise to feel the pulse of the community and try to set the open hours for a theoretical steady flow rather than for peaks, when crowds can be so great that the visitors do not have opportunity to absorb what they see. A board of trustees can point with pride to large attendance figures, but a more important criterion of success is the degree to which misinformation is eradicated and replaced by sound health facts. The more the museum is open after the hours of the typical office and industrial day, the better is the chance to compete with the beer parlors for attendance of those whom you most want to reach.

It is difficult to anticipate the growth of a new venture, but Cleveland's experience makes it possible to lay down an axiom. A good program will inevitably lead to demands for an even better and larger one and a larger budget; for example, in Cleveland, television programs now require not only the time of the departments of education and public relations but also time and materials from the workshops for television "props." Adding an exhibit may have the same end result as occurred in the case of Juno, the Cleveland museum's talking transparent woman. Someone must supervise when she "speaks" for 15 minutes of each hour in her little science theater. Increased over-all attendance means a larger staff will be required to handle it.

In the beginning, the responsibility for financing mass health education rests squarely on the shoulders of the originators. Unless there is assurance of income by endowment, the first few years require careful planning toward a growing membership roster and contributions. The latter may come from business houses and from specialized voluntary health agencies or from almost any kind of lay group sufficiently interested in the project to take on money-raising activities among themselves for the health museum, with the community as beneficiary. An expanded program made possible by additional funds may be construed as something meaningful to the physician who feels an obligation to contribute some of his own effort to the health education of the community in which he lives. Omitting the countless extramural contacts made possible by Cleveland's expanding program in 1952, the visitors within the museum's walls were exposed to about 90,000 hours of voluntary health education, which included medical specialties. To do that much for the community, each of the area's 2,000 physicians would have had to devote 45 hours of his spare time, about one full work week, to health education.

HEALTH MUSEUM IN A HOSPITAL

The local hospital may offer the best place to start a health education exhibit and related activities that might be identified as a "health museum." "Museum" is a good term, in one sense, because the public knows that it means "things to look at," although too often the public relates it to the hush-hush, mustn't-touch atmosphere associated with many museums. The lively characteristics of the Cleveland Health Museum have been reported in this journal and others, and it seems safe to omit any description here of the Ohio exhibits and methods. A hospital is a natural place for health education. A person who usually thinks little about health becomes personally interested in the corporal house in which he lives when a supporting member sags, or the plumbing jams, or leaks develop, or even when he imagines such damages to his very personal property. In consequence, the modern hospital can be a place for education, a place of hope rather than a last resort, and a place where teaching "health through knowledge" can be extended to visitors.

The planners of the new Lankenau Hospital in Philadelphia planned a health museum for well or sick persons as an integral part of the 6 million dollar project to be completed in late 1953. Thus, Lankenau Hospital will become a center for community health education, with a program coordinated under an educational director working with schools, industry, and various agencies.

A valuable adjunct to the health museum section, for which many Cleveland exhibits are being duplicated, is an auditorium to be used for forums, lectures, demonstrations, and motion pictures. The medical society considering possibilities of health exhibits may well center upon the possible use of a room in a hospital as a start, even though few have $300,000 and 4,000 sq. ft. of specially designed exhibit space and facilities ready-made for a launching, as does Lankenau.[1]

PLANNING THE PROGRAM

The foregoing has not been offered as a blueprint applicable to a health museum anywhere. As stated early, its purpose is to indicate some of the problems faced in undertaking a new project and some of the answers as they have applied in Cleveland. It is with the same purpose that the leg of the tripod labeled "program" is discussed. Suppose that space is available and funds are in hand or in sight. What kind of a program should be offered? Here the Cleveland experience provides precedent that may be applicable. Dr. Gebhard says that principles are the same here as in Europe or in "darkest Africa" for that matter. "One of the earliest considerations should be the scope of the program. Here personal preferences, likes and dislikes are very likely to crop up. Some may lean to the biological—from conception to senility. Others may want to present the effects of geographical location on health. Population or racial themes may be a favorite of someone else, or nutrition, medical specialties or whatever. All these and many others are perfectly legitimate subjects for health exhibits but the secret of success is not in completeness of a few but the variety of selection so that the over-all exhibits will have something for every age and interest, what We the People want to know." The scope of the program in Cleveland was originally "the presentation of scientific truth about the human body. . . ." That has been broadened to include what affects the body, thus opening the way for exhibits, newspaper articles, and radio and television programs on anything from allergies and air pollution, as represented by the annual pollen count, to zymosis, as exemplified by life-like models of babies as they appear with cases of scarlet fever and diphtheria. In addition to year-round exhibits on basic biology, food facts, and other timeless subjects, Dr. Gebhard has tuned the museum to the seasons. Hot weather hazards, from food spoilage to poison ivy, the common cold, poliomyelitis, and measles, are examples of seasonal or cyclic subjects.

First steps are not very different from those in the initial organizing of a new hospital. There is, however, a main difference beyond that point. According to Dr. Gebhard, "Patients must go to a hospital when conditions call for hospitalization, but the public exercises its free will in visiting a health museum." What the vanguard sees there will determine to a considerable degree the subsequent attendance of friends and acquaintances. "Only a tiny portion of any urban population is interested in flat charts of disease, vital statistics, blown-up dietary lists or cadaverous specimens." A model that only roughly simulates the heart and that flashes or thuds with each beat can inevitably draw attention to closely-related health educational facts about how many times a minute, hour, day, or lifetime the heart beats and why and how such a remarkable engine should be cared for. This does not mean that nothing realistic should be included among the exhibits. One of the most effective exhibits at the Cleveland museum is the life-like model of an appendectomy. Often, visitors comment on its simplicity, usually in terms that indicate fears allayed as they apply to the speaker and to those nearest and dearest. That is effective patient education. I doubt that better patients would result from the same technique as applied to cancer, gallstones, or an amputation. Realism must be tempered with judgment. "Basically a health museum should be a Health museum, not a museum of diseases," in the Gebhard summation.

PROGRAM PLANNERS

Although outstanding exceptions can be cited, physicians as a class are not notable as health educators. In industry, it is axiomatic that some outstanding salesmen have been dismal flops as executives. The good salesman and the good physician are often solo artists, doing their best work person-to-person. Both may have difficulty in projecting, even to an understudy, whom they want to teach, the thinking, methods, and techniques that have made them great in their own specialized fields. Therefore, in planning methods for public health education, the typical physician will do well to draw on the experience of others whose medical knowledge may be limited but who are teachers rather than practitioners. Teaching large segments of the public requires a bit of the theatrical approach, the primarily medical aspects being directed by a board or committee in case the teacher is not a physician.

In seeking personnel, it should be remembered that the profession of health education has grown to the point at which graduates in the field are making their mark on the times. The curator of exhibits in some other type of science museum may well be considered for the position of active head of a local health museum. A member of the staff of a teachers' college may fit well in the job. With additional training, a public relations director of a state or other medical society may fill the need. These suggestions are enough to indicate directions for a search that should turn up the right person. A physician with a flair for utilizing the community as his classroom is the ideal head for a health museum. Given the choice, however, between (*a*) a public spirited physician with no experience in heading community activities and (*b*) a health educator or comparable person with administrative experience in group work, there should be a little hesitancy in hiring Mr. B., with the hope that Dr. A will go along with the decision and will contribute his invaluable knowledge and spirit to the project. In the early stages, the acting head could be associated on a part-time basis.

NEED FOR INDEPENDENCE

To serve its community best a health museum should be a unit on its own rather than an extension service of an organized medical society. There are several reasons for this, not the least of which is that organized medicine must not be wrong, while a health education entity can experiment. Also, museums have their own methods and rules, many of which are based on a centuries-old experience, for example, museum persons recognize "museum fatigue" and arrange exhibits and tours accordingly. The operation of a health museum is comparable in most ways to the operation of a business. Although it does not operate for profit, the museum must have various departments, as does a business, and it operates under a management that is responsible to a board of trustees. Every department is an essential part in the institution's relations with outsiders. Organized publicity is only a part of "Good Conduct—and Getting Credit for It,"[2] the true meaning of good public relations. The kindly, informed physician who knows from experience how best to tell the facts to the uninformed or misinformed patient can be naive in matters concerned with reaching the wider public consciousness. I can recall only one major difference in opinion with some of the physicians with whom it has been my privilege to associate for about 13 years. It should be told to illustrate the difference in viewpoints.

---

[1] Gebhard, B.; Gay, D., and Kling, V.: Lankenau Pioneers America's First Hospital Health Museum, Mod. Hosp. 80: 74-75 (April) 1953.

Some of the physician-members felt that the museum should take a public stand on "socialized" medicine when the issue was incandescent. Such a pronouncement could have weakened the museum's influence immeasurably while setting a precedent that could have led into bogs of argument and misunderstanding. A health museum can take sides in problems of poliomyelitis, diabetes, dietary deficiency, and air pollution, as examples of man's enemies recognized world-wide. It cannot be a protagonist for opinions and at the same time keep an independent status as a specialized center for the dissemination of unbiased facts gathered from medical and health science, which know no boundaries. A health museum is set on a hill in a glass house, where every segment of the public has access. When the museum has found itself, it goes beyond the intramural exhibits into extramural activities throughout the community. The public forms its own opinions as to the motives, purposes, methods, authenticity, and worth of such a public institution. Regardless of how pure its motives and altruistic its objectives, some persons will misunderstand. It takes time to lay the true picture before a community. In the Cleveland museum's early days a principal objective was to convince key persons that America's first health museum was not set up by a few physicians for personal profit or special propaganda. During the first year, one skeptical newspaper man spoke of it as "Dr. ————'s health racket." Later, he wrote a favorable editorial. Another example is the effect of the museum's acquisition of the three-dimensional models of human reproduction from Dr. Robert L. Dickinson and sculptor Abram Belskie. A whispering wave of "birth control" followed, not maliciously but simply as a live topic for conversation. This was, however, nothing new. In 1940, while remodeling was under way, Dr. Gebhard, newly from New York, designated one room as the "Maternal Health" room. To many Clevelanders those words are synonymous with a "planned parenthood" organization. The room became the "Mother and Child" exhibit.

GROWTH IN SCOPE OF ACTIVITIES

Any long-time member of the Cleveland museum's board will agree that no group should start a health museum unless it expects it to grow. The original concept was that of a building housing exhibits that the people would visit. It is still the most important item, budgetwise, and perennially offers the most constant contact with the people. Yet, the housewarming was hardly over, in 1940, when telephone calls and personal visits showed widespread and active interest in getting information that such an institution, from its name, might be expected to have on hand. Soon it was drawn into special interest health activities. In a few cases, it was evident that some organizations feared that merging their effort with the museum might take some of the credit away from themselves. Had the health museum at that stage insisted upon "top billing," much cooperation would have been lost, with the community as the main loser. It has now become apparent that the staff's intent is to aid every legitimate project with all the information, experience, and ideas it has available. Today, the museum often furnishes the ideas, plans the methods, and plays a principal part in execution of a project for which some inexperienced organization comes for help. If this type of help is given often enough, eventually a health museum will attain the position of "big brother," regardless of whether brother appears when credits are handed out. When local newspapers or the radio or television industry has learned to turn to the museum as a source of information, for checking facts, or for comment, the health education project will have arrived. A newspaper conducting a pre-Christmas-holiday drive on drunken driving came to the Cleveland Health Museum for much of its material, which, incidentally, consisted in part of the American Medical Association's exhibit on the subject.

Even though the existence of a health museum is good, the museum cannot afford to be static. A busy attitude is a requisite. This, may draw some criticism from conservative groups and individual persons, until they learn that a museum's objectives can be reached only by activity. This necessitates being conspicuous occasionally for the good of community health education. In Cleveland, an early self-promoted activity was a radio program with members of the Academy of Medicine of Cleveland as speakers. In early 1953, the museum and the academy embarked cooperatively on a television health education project. The early spade work in locating a sponsor and arranging practical details (they are multitudinous in this field) eventually brought the academy into the project as a natural collaborator, because it has the medical authority and personnel needed to give the desired educational impact. The series, which is televised in Cleveland and "piped" to an Ohio-wide network, consists of one-subject programs presented as interviews with physicians. The camera, shifting to the home of a "typical" Ohio family, catches the members conversing on that day's subject. Their ideas on health furnish the opportunity for the physician to present truths while correcting misinformation. Printed digests of each program are offered. Response has come more quickly and in greater numbers than anyone had anticipated, proving again the public's interest in health matters. The sponsor is an oil company. Although some may shudder at the thought of commercial sponsorship of any public health activity, others will admire a sponsor with the courage and convictions to invest in a program for public benefit with a minimum of "commercials." Commercial sponsorship makes it possible for the museum, like the family physician, to make house calls.

---

[2] Martin, D.: Getting Credit, Ohio's Health 111: 1-7 (Dec.) 1951; Public Relations Is Nice Work if You Can Take It, The Quill (Sigma Delta Chi), June, 1951, pp. 10-20.

CONCLUSIONS

"The public is not interested in public health," according to Dr. Gebhard. "It is concerned most with personal health. Therefore the basic appeal should be to individuals as members of a family." Enough has been stated here to indicate how the pioneer health museum carries activities beyond the museum walls into outside meetings, into publications, and into homes. Information that is uninvited frequently evokes high appreciation, as proved by the museum's mail response. A health museum project may be started advantageously elsewhere in a small way as far as space and funds are concerned. A large program can stem from a small space area, accomplishing one thing, if nothing more: it can bridge the gaps between sporadic health "drives" and thus can be the one constant force in education of patients before they get sick.

971 Union Commerce Bldg. (14).

COUNCIL ON PHARMACY AND CHEMISTRY

REPORT TO THE COUNCIL

The Council has authorized publication of the following report.

R. T. Stormont, M.D., *Secretary.*

PREPARATION AND MAINTENANCE OF STERILE OPHTHALMIC SOLUTIONS

Frederick H. Theodore, M.D.
and
Robert R. Feinstein, New York

Serious ocular infections resulting from the use of contaminated ophthalmic solutions are becoming increasingly prevalent. This situation may be directly attributed to the astounding fact that in the United States, until recently,[1] no section of the Federal Food, Drug, and Cosmetic Act was interpreted as requiring manufacturers and dispensers of eye medicaments to prepare sterile solutions fortified with adequate preservatives.[2] Recognition of this health and economic hazard is growing. At present the Federal Food and Drug Administration, the United States Pharmacopeia, the National Formulary, and the American Medical Association are all working toward a common goal: proper safeguards for ophthalmic drugs. The A. M. A. Council on Pharmacy and Chemistry has required sterility of commercially prepared ophthalmic solutions as a prerequisite for Council approval for some time. Objections have been raised in regard to the feasibility of certain aspects of legislation concerning this problem; these objections served to delay the formulation of satisfactory statements of policy. This report is submitted for the purpose of clarifying and simplifying the problem, which, when considered in detail, is by no means insurmountable.

The basic source of ophthalmic solutions used by patients is either a commercial manufacturer or a retail or hospital pharmacy compounding its own solutions. The particular danger of large-scale commercial preparation of solutions is that, if contaminated, the long interval between manufacture and use by the patient allows the widespread distribution of many units of grossly infected medicaments. Retail or hospital pharmacies accustomed to preparing stock bottles of frequently prescribed ophthalmic solutions are an equally serious, and possibly more frequent, source of infection, should lack of sterile procedures and careless handling result in contamination of such large containers. It is the opinion of the authors, however, that at the present time regulations should be formulated controlling the manufacture of only commercially prepared solutions. This should not be difficult. Regulation of the retail and hospital pharmacy presents more legal and other jurisdictional complications. It is felt, therefore, that for the time being an educational program is the best approach as regards noncommercial compounding. This already has been begun in cooperation with the National Society for the Prevention of Blindness.[3] Ultimately, the regulation of pharmacies must also be achieved, if all loopholes are to be closed. This report deals specifically with the control of the manufacture of eye solutions by pharmaceutical concerns. In the light of recent events, these companies are desirous of cooperating toward this end, because they realize that the minor additional expense and difficulty involved are well worth while. The related problem of ophthalmic ointments[4] is not discussed in this report.

SPECIAL ASPECTS OF OCULAR MICROBIOLOGY

Although the eye is subject to infection by many types of micro-organisms, experience indicates that only a relatively small variety of bacteria, fungi, and viruses must be considered in any discussion of ocular infections caused by contaminated eye solutions. In this regard the most important bacterium of all is Pseudomonas aeruginosa (Bacillus pyocyaneus). All recent episodes of drug infection have resulted from this organism, which may cause the most serious type of corneal ulcer encountered in ophthalmology. Moreover, most corneal infections caused by Pseudomonas species appear to be traceable to contaminated ophthalmic solutions and ointments. This gram-negative bacillus grows readily in most mediums and forms both toxins and antibacterial products. To the latter may be ascribed the fact that the bacterium grows in pure culture as other contaminants are killed off. Tap water and solutions of the following ophthalmic drugs have been found to be contaminated with Ps. aeruginosa: fluorescein, physostigmine (Eserine), pilocarpine, scopolamine, atropine, ethylmorphine hydrochloride, cocaine, dibucaine (Nupercaine) hydrochloride, tetracaine (Pontocaine) hydrochloride, cortisone acetate, the sulfonamides, homatropine hydrochloride, methylcellulose, and sodium chloride. In other branches of medicine the importance of Pseudomonas organisms as pathogens is also becoming more appreciated. Investigators in the field of antisepsis now suggest that this bacterium should be employed as a test organism along with those generally used for evaluation of antibacterial activity.

Another group of gram-negative bacilli that are capable of serious corneal infection are members of the genus Proteus. They have been found as contaminants in methylcellulose solutions. The only other gram-negative ocular pathogens of clinical importance are Hemophilus influenzae, Hemophilus conjunctivitidis (B. Koch-Weeks), Neisseria gonorrhoeae, N. meningitidis, Escherichia coli, Klebsiella pneumoniae, and Moraxella lacunata. These rarely, if ever, appear to cause serious drug contamination.

---

[1] Federal Register, No. 11, **18**: 351 (Jan. 16) 1953.

[2] Theodore, F. H., and Minsky, H.: Lack of Sterility of Eye Medicaments, J. A. M. A. **147**: 1381 (Dec. 1) 1951. Theodore, F. H.: Contamination of Eye Solutions, Am. J. Ophth. **34**: 1764 (Dec.) 1951.

[3] Theodore, F. H., and Feinstein, R. R.: Practical Suggestions for the Preparation and Maintenance of Sterile Ophthalmic Solutions, Am. J. Ophth. **35**: 656 (May) 1952.

[4] Lehrfeld, L., and Donnelly, E. G.: Contaminated Ophthalmic Ointments, Arch. Ophth. **40**: 39 (July) 1948.

The only common gram-positive ocular pathogens relevant to this report, that is, organisms that have been found to cause drug contamination, are Micrococcus pyogenes var. aureus, species of Streptococcus, and Diplococcus pneumoniae. On theoretical grounds, however, Bacillus subtilis, an ever-present spore-forming air contaminant of low virulence, must be mentioned. When this organism infects the vitreous humor a serious abscess occurs. Therefore, care must be taken to prevent air contamination of drugs used in ocular surgery or in the treatment of penetrating injuries of the eye. From a practical aspect the only pathogen of the fungi to be considered is Aspergillus fumigatus. Molds in eye solutions generally are harmful only because they accelerate deterioration of the active drugs; they do not cause ocular infections.

Contamination of ophthalmic solutions by viruses of ocular significance has not been known to occur during manufacture. Although it is theoretically possible, no instances of contamination by manufacturing personnel suffering from ocular infection of viral origin have been reported. However, solutions of tetracaine hydrochloride and sodium sulfacetamide have been contaminated in physicians' offices by the virus of epidemic keratoconjunctivitis after the droppers have been accidentally in contact with the patients' secretions during active infection. In one instance,[5] as many as 42 cases of this disease were caused by one infected bottle of tetracaine hydrochloride. The virus of trachoma similarly may infect clinic bottles of eye solutions that are used in treating more than one patient. The viruses of herpes simplex, vaccinia, and molluscum contagiosum may conceivably cause drug contamination, but instances have not been reported. The only certain prophylaxis in office and clinic treatment of virus infections of the external eye appears to be the use of single dose disposable units of ophthalmic solutions, because the preservatives now available are ineffectual against viruses. In fact, in the office treatment of serious ocular infections caused by any type of pathogenic organism, single dose units are preferable.

SUGGESTED PROCEDURE FOR THE COMMERCIAL MANUFACTURE OF OPHTHALMIC SOLUTIONS

The technique to be described has proved successful in large pharmaceutical operations for the preparation of sterile solutions of heat labile drugs. In essence, it is simply one of filtration of previously prepared solutions containing suitable preservatives (figure). The actual steps of the procedure are standard pharmaceutical practice and need not be described here. Unless attention is paid to the following details, however, the procedure will not result in uniformly sterile and potent ophthalmic solutions and may give a false sense of security:

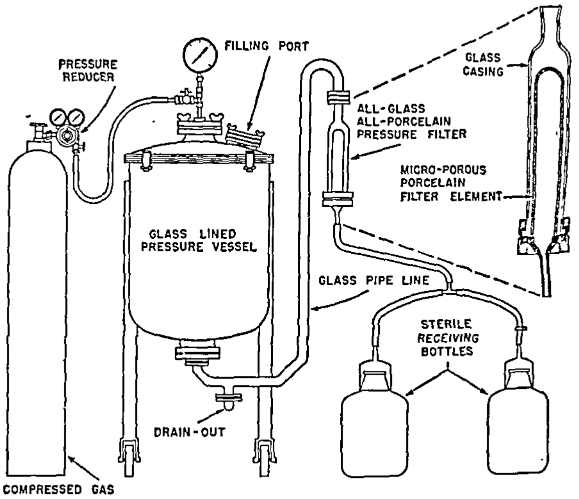
1. The containers and equipment should be autoclaved either in open inverted position or with sufficient internal moisture to ensure full exposure to saturated steam without air mixture at 121 C for at least 20 minutes. Although dropper assemblies are available with plastic caps that can be autoclaved, they are not in general use as yet. The plastic caps commonly used cannot tolerate the temperatures in an autoclave, and, therefore, they should be soaked in a 1% solution of phenol at 37 C for 30 minutes, but all container parts that cannot be autoclaved should be replaced as soon as possible by those that can.

2. The choice of the proper filter is of the greatest importance. Sintered porcelain filters should be used. Those manufactured by Selas Corporation of America are preferred for the following reasons: 1. They are available in a large variety of candles, funnels, and disks. 2. The no. 03 porosity (pore size 0.6 μ) will remove all bacteria, fungi, and some of the larger viruses. 3. They do not carry electric charges, and therefore will not remove active ingredients from solutions. 4. They are chemically inert and will not alter the pH of the solution being filtered. 5. They are relatively resistant to thermal shock and can be repeatedly sterilized by autoclaving and easily cleaned with chemicals or by heating to cherry-red heat in a muffle furnace. 6. They can withstand high pressures and vacuums.

3. Suitable vacuum or pressure pumps should be used. Nitrogen (purified grade) is the gas preferred for use in pressure systems.

4. The role of the personnel employed during the various stages of the entire operation deserves specific emphasis. While ordinary cleanliness and hygienic precautions will suffice during the earlier steps in the manufacture of ophthalmic solutions, it must be definitely understood that no employee engaged in any part of the operation should be suffering from infections of the eyes, the upper respiratory tract, or the skin, including common conditions such as herpes simplex. The filtration procedure will not remove most viruses, and it is not wise to place absolute trust in the sterilizing powers of ultraviolet ray radiation. Moreover, employees suffering from a genitourinary or gastrointestinal infection should not be allowed in the area set aside for the manufacture of ophthalmic solutions because these infections may be caused by Pseudomonas organisms. Employees engaged in the actual filling of the individual units must prepare themselves in the same manner as a surgeon prior to entering an operating room. A surgical scrub-up, the use of a sterile mask covering both nose and mouth, and sterile cap, gown, and gloves are mandatory.

5. The entire working area should be bathed in ultraviolet light. However, exposure of personnel to irradiation for the entire work period might result in serious eye injuries unless proper precautions are taken to shield the eyes. Many pharmaceutical houses irradiate only during those times when workers are away from the area, such as during lunch or rest periods. It is important that germicidal lamps be checked at regular intervals to insure adequate emission of the germicidal wave lengths of ultraviolet light. The mere fact that these lamps may glow brightly does not insure adequate protection or a sterile atmosphere. Periodic cultures of air and surfaces should be taken in these rooms. Effectiveness of irradiation will be reduced in an area not kept scrupulously clean; proper attention to cleanliness will do more toward maintaining a low bacterial count than reliance on irradiation.


FILLING PORT
PRESSURE REDUCER
GLASS CASING
ALL-GLASS ALL-PORCELAIN PRESSURE FILTER
MICRO-POROUS PORCELAIN FILTER ELEMENT
GLASS LINED PRESSURE VESSEL
GLASS PIPE LINE
STERILE RECEIVING BOTTLES
DRAIN-OUT
COMPRESSED GAS

PRESSURE STERILIZATION SYSTEM

PRESERVATIVES FOR OPHTHALMIC SOLUTIONS

The choice of the proper preservative is of the greatest importance. It must be realized, however, that no antiseptic available at present as a preservative for ophthalmic solutions can be relied on. Preservatives that are generally considered reliable may be found inadequate on occasions, such as in the event of particularly gross contamination of the antiseptic or

---

5. Thygeson, P.: Epidemiology of Epidemic Keratoconjunctivitis, Am. J. Ophth. 32:951 (July) 1949.

when inactivation of the antiseptic occurs. Thus the addition of preservatives to solutions not prepared under sterile precautions, as has been suggested by some investigators, can never serve as a substitute for sterile preparation of these drugs.

In addition to satisfactory bacteriostatic and fungistatic action, a suitable ophthalmic preservative must have the following qualifications: 1. It should be nontoxic. 2. It should be nonirritating to ocular tissue. 3. It should remain active indefinitely. 4. It should not have any allergenic or sensitizing tendencies. 5. It should be compatible with most of the drugs and excipients used in ophthalmology.

Six types of antiseptics have been suggested by various investigators for use as preservatives in ophthalmic solutions.[6] Preferences in the choice of preservatives seem to change, often without basis in fact. A few years ago the mercurials were preferred; now the cationic wetting agents and the esters of *p*-hydroxybenzoic acid are favored; however, chlorobutanol, one of the oldest preservatives, still appears to fulfill best the aforementioned requirements. The reasons for this are as follows:

1. The esters of *p*-hydroxybenzoic acid are more useful as fungicides than as bacteriostats. Moreover, because of their poor solubility in water, potassium hydroxide must be added in order to reach a concentration high enough to be effective against Pseudomonas and many other ocular pathogens.[7] The addition of even a small quantity of such a strong alkali would increase the ocular irritation that is likely to occur with this group of chemicals. Moreover, increasing the pH will accelerate the deterioration of the active drugs used.

2. The mercurials are usually effective against the pseudomonas and other ocular pathogens. They have several serious disadvantages, however. First, they often cause allergies with prolonged use. Second, only the more toxic inorganic mercurials can be used in ophthalmic solutions requiring acid mediums; the organic mercurials are soluble and stable only in alkaline solutions.

3. Phenols and chlorinated derivatives are too irritating in their effective concentrations to be useful in ophthalmic solutions.

4. Formaldehyde sodium sulfoxylate, recommended by various investigators, is also too irritating to be used as a preservative for ophthalmic solutions.

5. The cationic wetting agents (benzalkonium, cetyl benzalkonium, and phemerol) appear to be of questionable value for use as preservatives. Their bacteriostatic effect is too variable and, at times, unreliable, especially against Ps. aeruginosa.[8] It has been shown that the antibacterial action of active quaternary compounds may be diminished by the presence of less active quaternary ammonium salts because of an interference phenomenon occurring on the surface of the bacterial cell or within the cell itself.[9] This could serve as an explanation for the sometimes capricious behavior of the quaternaries, and especially for those instances when certain strains of Pseudomonas were found to grow profusely in solutions containing cationic preservatives. In addition, cationic wetting agents are easily inactivated by high molecular anionic chemicals, such as soaps and other detergents, as well as compounded and natural rubber. They are incompatible with and therefore inactivated by certain ophthalmic drugs such as pilocarpine nitrate, all salicylates, fluorescein, and boric acid. Furthermore, both their bacteriostatic and fungistatic actions may be influenced adversely by changes in pH.

Chlorobutanol appears to fulfill all the aforementioned requirements for a satisfactory ophthalmic preservative. The mechanism of the effectiveness of a 0.5% solution as a preservative is not well understood. In fact, surprisingly little has been written about this very useful and widely employed drug. Its complete antibacterial and antifungal spectrum has not been evaluated. On the basis of experimental observation and experiences during the past 50 years of its use as a preservative,[10] however, its effectiveness against the usual pathogens appears to be well established.

Our own experiences have proved extremely satisfactory. In order to ascertain how long chlorobutanol is effective, a number of office bottles of sterile ophthalmic solutions, opened and used frequently over periods up to three years, were cultured by us on blood agar, thioglycollate medium, and glucose broth. All of the solutions proved to have remained sterile except one bottle of commercially prepared methylcellulose in use for over two years, which proved to be contaminated with Proteus vulgaris. Since these dropper bottles had been handled by office assistants, it is reasonable to assume that sometimes the dropper touched the eyelids or eyelashes of patients, yet the solutions remained sterile. Experiments by one of us (F. H. T.) have confirmed those of McCulloch,[11] who found that a 0.3% concentration of chlorobutanol was necessary to prevent growth in solutions inoculated with a loop-full of a fresh culture of Pseudomonas. Our investigations indicate that even weaker concentrations (0.125%) are effective against certain strains of Pseudomonas and P. vulgaris. The inoculant, of course, represented a number of organisms far greater than that liable to occur through contamination during use by patients.

There are two minor disadvantages in the use of chlorobutanol as a preservative. First, in the preparation of solutions, care must be taken to maintain a temperature high enough to dissolve the drug but not high enough to destroy it. Second, it decomposes slowly in alkaline solutions. Since most ophthalmic solutions are buffered to a pH of 7.4 or below, this is not a serious drawback.

HANDLING OF THE FINISHED PRODUCT

Sterile, commercially prepared ophthalmic solutions should be dispensed only in their original bottles. For this reason they should be available in small units never larger than 15 cc. and preferably smaller. The eye dropper should be sterile and packaged to maintain sterility. Packaging and sealing as part of the unit ready for use will obviate contamination resulting from careless handling by the pharmacist. Manufacturers should clearly label the container with adequate instructions to the pharmacist concerning proper handling.

CONCLUSIONS

1. Governmental regulations now exist insuring the sterility of commercially prepared ophthalmic solutions. These requirements should ultimately include the retail and hospital pharmacies, but at present an educational program is desirable.

2. A practical method for obtaining solutions free from bacteria and fungi that is applicable for heat labile ophthalmic drugs is described.

3. The use of chlorobutanol as a preservative agent is suggested.

4. Care in the handling of the finished product is an important part of the success of the program.

667 Madison Ave. (21) (Dr. Theodore).
37 W. 57 St. (19) (Mr. Feinstein).

---

[6] Another chemical that may prove to be useful as a preservative is phenylethyl alcohol. Dr. John H. Brewer, Baltimore, has found it to be effective as a bacteriostatic agent in ophthalmic solutions against gram-positive and gram-negative organisms, particularly Pseudomonas aeruginosa (personal communication to the authors).

[7] Sokol, H.: Recent Developments in the Preservation of Pharmaceuticals, Drug Standards **20**: 89 (May-June) 1952.

[8] New and Nonofficial Remedies, Chicago, American Medical Association, 1953, p. 79.

[9] Valko, E. I., and DuBois, A. S.: Antibacterial Action of Surface Active Cations, J. Bact. **47**: 15 (Jan.) 1944.

[10] Morton, H. McI.: Chloretone (Tri-chlortertiary-butyl alcohol) in Ophthalmic Practice, Northwestern Lancet **20**: 207, 1900.

[11] McCulloch, J. C.: Origin and Pathogenicity of Pseudomonas Pyocyanea in the Conjunctival Sac, Arch. Ophth. **29**: 924 (June) 1943.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
535 N. DEARBORN ST. . . . . CHICAGO 10, ILL.
Editor . . . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

NARCOTIC SUPPLIES

From time to time there have been published in THE JOURNAL statements on the responsibilities of physicians under the Harrison Narcotic Act. In addition to having a registry number that must be renewed each year, the practicing physician must exercise control over his supply of narcotics if for no other reason than to protect himself. In the same light, pharmacists and drug wholesalers must observe certain responsibilities if they are to avoid difficulties with the Federal Bureau of Narcotics.

Physicians cannot obtain nonexempt narcotics directly from pharmacists (unless they are registered as narcotics wholesalers) for use in their offices; they must obtain official order forms to secure narcotics for their practice. They can, of course, prescribe narcotics for patients and expect such prescriptions to be filled at pharmacies and in hospitals. However, an interesting aspect of the prescribing of narcotics concerns the liability of the pharmacist, who is responsible under the federal law for determining if the prescription was written by a physician (or other authorized practitioner) and who thus must always be on the alert for forged signatures and for prescriptions that have been stolen. When in doubt the pharmacist should consult with the physician whose signature appears on the prescription and when he takes such action he is not being arbitrary but rightfully cautious.

A narcotic order received by telephone cannot be delivered until the pharmacist or his manager receives a written prescription. The prescription cannot be mailed or delivered later. Furthermore, a narcotic prescription cannot be refilled; nor can it be signed by anyone other than the physician, who must sign, not type or stamp his name. He cannot even ask his nurse to sign for him. Nor can he sign several blank orders and leave them with a pharmacist to be used later as the need arises. Each prescription must contain the date on which it is written, the full name and address of the patient, and the name address, and registry number of the prescribing physician.

Physicians are likely candidates for addicts to approach in the hope of obtaining narcotics or an order for them by one trick or another. The excuses offered in the average doctor's office are almost too numerous to mention, but nevertheless the physician must always exercise his best judgment to detect such falsified tales if he wishes to avoid innocently coming into conflict with the law. In addition, his car if recognized as belonging to a physician may be broken into by addicts looking for narcotics; or his office may be ransacked. Or he may even be held at gun point by the more desperate. Regardless of the method of attack by an addict the doctor must account for his narcotic supplies, and it may even be wise for him to keep his narcotics divided for hiding in several places. At all times they should be kept under lock and key.

There are comparatively few honest persons who would deliberately invite trouble by carelessly handling narcotics. There are others, however, who risk embarrassment and misunderstanding because of thoughtlessness or even ignorance of good practices. The safeguarding of narcotics is a responsibility of several interested groups—doctors, pharmacists, drug wholesalers, drug manufacturers, and law enforcement officials. Each usually tries to use common sense and to respect the laws. On occasion there may be an unintentional slip, and when such occurs a tolerant attitude can be taken only when there is evidence of unquestionable good faith on the part of the offender. Thus it behooves everyone to appreciate not only his own responsibilities but the problems of others who are involved in the handling, use, and control of narcotics. It is too serious a problem to permit impatience and intolerance.

TOXOPLASMOSIS

Nicolle and Manceaux described in 1908 an intracellular parasite observed in smears of the spleen and other organs of the North African rodent, the gondi. Splendore in the same year made the same discovery in Brazil. These investigators named the parasite Toxoplasma gondii and regarded it as a protozoon. According to Sabin,[1] the cardinal characteristics of the species are (1) typical morphology and staining characteristics of extracellular and intracellular forms in films, fresh tissue, or exudate; (2) pathogenicity for such animals as mice, guinea pigs, rabbits, and chicks; (3) obligate intracellular parasitism; and (4) immunologic relationships with established strains. Proof that Toxoplasma is the cause of certain disease conditions in human beings was first obtained in 1939.

The discovery by Sabin and Feldman [2] in 1948 of a new immunologic phenomenon, the so-called cytoplasm-modifying or dye test, became the basis of a widely used quantitative test for the determination of antitoxoplasmotic antibody. The cytoplasm of Toxoplasma contained in fresh exudate has a great affinity for certain dyes; methylene blue at pH 11 stains it a deep blue. Combination of toxoplasma with antibody does not in itself affect the affinity of the cytoplasm for the dye, but, when such antibody-treated Toxoplasma are acted on by a complement-like accessory factor, the affinity for the dye is lost and the cytoplasm remains unstained. Human beings, animals, and birds develop this cytoplasm-modifying antibody after injection of Toxoplasma.

The most commonly recognized clinical manifestations of human toxoplasmosis are the result of congenital infection. The diagnosis is readily established by serologic methods, especially during the first five years of life. The clinical manifestations of congenital toxoplasmosis are chorioretinopathy, cerebral calcification, hydrocephalus or microcephalus, and psychomotor disturbances. The occurrence of these clinical manifestations, Sabin warns, does not in itself indicate that the cause is toxoplasmosis; however, he states that the incidence of serologic confirmation of toxoplasmosis in the presence of this syndrome can be as high as 80 or 90%. Chorioretinopathy is the most important and suggestive sign of congenital cerebral damage.

---

[1] Sabin, A. B.: Toxoplasmosis: Current Status and Unsolved Problems: Introductory Remarks, Am. J. Trop. Med. 2: 360-364 (May) 1953.

[2] Sabin, A. B., and Feldman, H. A.: Dyes as Microchemical Indicators of a New Immunity Phenomenon Affecting a Protozoon Parasite (Toxoplasma), Science 108: 660-663 (Dec. 10) 1948.

The chief practical benefit to be derived from a specific diagnosis of congenital toxoplasmosis is the good prognosis for subsequent children. In Sabin's experience, 50 mothers who had given birth to one child with congenital toxoplasmosis subsequently gave birth to one or more normal children without the disease. The consensus is that only mothers with primary acute infection, which may be entirely inapparent or unrecognizable, can transmit toxoplasma to their offspring in utero. Millions of women possessing plasma antibodies have given birth to children without toxoplasmosis. Those who gave birth to affected children invariably showed the high antibody titers expected of recent infection.

According to Frenkel,[3] the range of animals that can be infected with toxoplasma is unique for the protozoa. All mammals and birds investigated have been found susceptible to toxoplasmosis. It is probably the most ubiquitous and prevalent of parasites. Neonatal toxoplasmosis is probably always the result of a congenital transmission of the infection, according to Jacobs. Toxoplasma is an intracellular protozoon of which proliferative and cyst forms are recognized. During the acute infection, proliferative forms are characteristically seen. Cysts are characteristic of chronic infection. The Sabin dye test is a reliable sensitive indicator of antibodies for Toxoplasma. The other serologic procedure is the complement fixation test described by Warren and Russ in 1948 and by Sabin in 1949.

Two types of disease produced are in humans by Toxoplasma: acquired and congenital. Acquired toxoplasmosis manifests itself by fever, papular rash and encephalitis, myalgia, arthralgia, myocarditis, lymphadenopathy, and pneumonitis. Congenital toxoplasmosis results, according to Feldman,[4] during the parasitism of an inapparent infection that has occurred in a pregnant woman. Such an event, depending on the stage of pregnancy during which the infection was contracted, may have any of the following results: the fetus may die in utero after abortion; the fetus may be born either prematurely or at term with active toxoplasmosis; or the fetus may be normal at birth and appear quite well for days, weeks, or months before certain structural changes or symptoms are noted. Active disease in the newborn may be manifested by fever, jaundice, rash, hematomegaly, splenomegaly, xanthochromic spinal fluid, and convulsions. Various disabilities may make their appearance among infants and children who appeared quite normal at birth, such as hydrocephaly or microcephaly, chorioretinitis, psychomotor retardation, or convulsive episodes. Feldman[4] studied 103 patients with toxoplasmosis. Of these, 99% were found to have chorioretinitis, 63% to have cerebral calcification, 56% psychomotor retardation, 50% hydrocephaly or microcephaly, and 50% convulsive episodes. Sabin and Warren[5] found that the sulfonamides showed definite activity against toxoplasmosis in mice and rabbits. Sulfonamides, particularly sulfadiazine and related compounds, are definitely active against Toxoplasma in experimental animals. Since they are safe drugs and are readily available, Eyles[6] feels that they should be used in cases of human toxoplasmosis. The most promising recent development in the chemotherapy of toxoplasmosis was the discovery that the pyrimidine drug Daraprim (2:4-diamino-5-[*p*-chlorophenyl]-6-ethyl pyrimidine) and related compounds have definite therapeutic effect against Toxoplasma. Perhaps more important is the fact that these drugs act synergistically with the sulfonamides. The antibiotics have only a slight effect even at extremely high dosages. None of the other compounds so far investigated has been outstandingly effective.

The relative incidence of inapparent and clinically recognizable forms of toxoplasmosis remains to be elucidated. Recent studies suggest, as stressed by Sabin, that the parasite Toxoplasma will be shown to represent an almost perfect host-parasite relationship in which the parasite only rarely causes serious damage to its hosts and the hosts are not too intent on destroying the parasite, an instance of a lot of infection and little disease.

THE 1952 MEDICAL CARE DOLLAR

The Bureau of Medical Economic Research has recently published another item in its series on personal consumer expenditures for medical care based on data recently issued by the United States Department of Commerce.[1] Total personal consumer expenditures for all goods and services rose from 208 billion dollars in 1951 to 218 billion in 1952. The medical care portion increased from 9.0 billion dollars to 9.6 billion dollars, from 4.3% to 4.4% of the total; an unknown portion of this increase was due to the large number of births. The physician's share of the personal consumer dollar spent for medical care decreased from 28.1 cents to 27.8, while the hospital's share rose from 24.0 cents to 24.8. Thus the data for 1952 indicate a continuation of the long trend downward for the physician's share and upward for the hospital's share. The dentist's share also declined slightly.

On the basis of these data and other data published by the United States Department of Labor, this study reports that in 1952, as in 1951, 54% of an average week's wages of production workers in manufacturing industries was required to purchase the same amount of medical care and drugs that would have required an entire week's wages in the base period 1935-1939. The corresponding percentage for physicians' services was 50 in both years.

---

[3] Frenkel, J. K.: Host, Strain and Treatment Variation as Factors in the Pathogenesis of Toxoplasmosis, Am. J. Trop. Med. 2: 390-415 (May) 1953.

[4] Feldman, H. A.: The Clinical Manifestations and Laboratory Diagnosis of Toxoplasmosis, Am. J. Trop. Med. 2: 420-428 (May) 1953.

[5] Sabin, A. B., and Warren, J.: Therapeutic Effectiveness of Certain Sulfonamides on Infection by an Intracellular Protozoon (Toxoplasma), Proc. Soc. Exper. Biol. & Med. 51: 19-23 (Oct.) 1942.

[6] Eyles, D. E.: The Present Status of the Chemotherapy of Toxoplasmosis, Am. J. Trop. Med. 2: 429-444 (May) 1953.

[1] 1952 Expenditures for Medical Care, 4 pages. A copy of this item, publication M-77, may be obtained by writing to the Bureau of Medical Economic Research, American Medical Association, 535 North Dearborn Street, Chicago 10, Ill.

ORGANIZATION SECTION

MEDICAL PUBLIC RELATIONS INSTITUTE

Drake Hotel, Chicago
September 2 and 3, 1953

PROGRAM

Wednesday, September 2

OPENING OF REGISTRATION

8:30 a. m., Ballroom Foyer

SCREENING OF TELEVISION FILMS

9 a. m., Ballroom

These are new filmed TV shows available for exclusive use of state and county medical societies.

What to Do

Six five-minute films on home medical emergencies

A Citizen Participates

Half-hour documentary telling how a town organized to find itself a physician

Operation Herbert

Major, A. M. A.-produced, TV play, starring comedian Jackie Kelk, explaining cost of medical care

YOUR 1953 INSTITUTE

10:15 a. m., Ballroom

The Job to Be Done

Leo E. Brown, Chicago, Director, Department of Public Relations, American Medical Association

A. M. A. Sends Greetings

Ernest B. Howard, M.D., Chicago, Assistant Secretary, American Medical Association

THE PLACE OF TELEVISION IN YOUR PR PROGRAM

10:30 a. m., Ballroom

Chairman: John F. Conlin, M.D., Boston, Director, Medical Information and Education, Massachusetts Medical Society

The Public Service TV Show

Robert K. Richards, Washington, D. C., Administrative VP, National Association of Radio and Television Broadcasters

How the A. M. A. Can Help

W. W. Bauer, M.D., Chicago, Director, Bureau of Health Education, American Medical Association

Cooperating with Medical Schools and Health Departments

James Rogers Fox, M.D., Minneapolis, University of Minnesota

Local Promotion of Network Medical Shows

G. Frederick Roll, Philadelphia, Manager, Public Relations, Smith, Kline & French Laboratories

Questions from the Audience

LUNCHEON

12:30 p. m., French Room

Get Acquainted Session. No speaker

FIRST GROUP OF "HOW-TO-DO-IT" CLINICS

2 p. m.

Institute registrants can attend any of three clinic meetings

Clinic One, Parlor F

Topic: Tips on conducting a successful PR program on a small budget. In a county society. In a state society.

Discussion Leaders:

D. J. Parsons, M.D., Springfield, Ohio, Chairman, Public Relations Committee, Clark County Medical Society

John C. Foster, Sioux Falls, Executive Secretary, South Dakota State Medical Association

Clinic Two, Parlor D

Topic: What techniques can be used to develop interest and support in labor of medicine's PR program?

Discussion Leaders:

B. M. Overholt, M.D., Knoxville, Chairman, Health and Medical Care Council, Tennessee Medical Foundation

Harry A. Lehman, Fort Wayne, Ind., Executive Secretary, Fort Wayne Medical Society

Clinic Three, Parlor C

Topic: What television writing and production techniques are best adapted to medical shows?

Discussion Leaders:

Ad Schneider, New York, Executive Producer, National Broadcasting Company

Robert K. Richards, Washington, D. C., Administrative VP, National Association of Radio and Television Broadcasters

John C. Kadonsky, Milwaukee, Director, Public Information, Medical Society of Milwaukee County

SECOND GROUP OF "HOW-TO-DO-IT" CLINICS

3:30 p. m.

Institute registrants can attend any of three clinic meetings

Clinic Four, Parlor C

Topic: What methods can be used to combat cultists and quacks? On a state level? On a county level?

Discussion Leaders:

James A. Waggener, Indianapolis, Executive Secretary, Indiana State Medical Association

Frederick W. Miebach, New York, Director, Public and Professional Relations Bureau, Medical Society of the State of New York

Orlen J. Johnson, M.D., Bay City, Mich., Chairman, Public Relations Committee, Bay County Medical Society

Clinic Five, Parlor D

Topic: What is the best way to handle media (press, radio, TV) coverage of a state medical convention?

Discussion Leaders:

John L. Bach, Chicago, Director of Press Relations, American Medical Association

W. E. Syers, Austin, Public Relations Counsel, Texas Medical Association

Rowland B. Kennedy, Jackson, Executive Secretary, Mississippi State Medical Association

Clinic Six, Parlor F

Topic: How to enlist society support for its women's auxiliary. How to best utilize the PR potential of these groups.

Discussion Leaders:

Mrs. Neil W. Woodward, Oklahoma City, Chairman, Committee on Public Relations, Woman's Auxiliary to the American Medical Association

Thomas E. Walsh, New York, Field Representative, Public and Professional Relations Bureau, Medical Society of the State of New York

RECEPTION

5:30 p. m., French Room

Thursday, September 3

SOLVING MUTUAL MEDICAL SOCIETY–BLUE SHIELD PR PROBLEMS

9 a. m., Ballroom

Chairman: M. C. Smith, Lincoln, Executive Secretary, Nebraska State Medical Association

Symposium: What Can Be Done

Earl R. Thayer, Madison, Public Information Director, Wisconsin State Medical Society

L. T. Reed, Boston, Assistant Director, Massachusetts Medical Service

Donald L. Taylor, Des Moines, Field Secretary, Iowa State Medical Society

HEALTH FORUMS SPONSORED JOINTLY BY LOCAL NEWSPAPERS AND COUNTY MEDICAL SOCIETIES

10:15 a. m., Ballroom

Moderator: Arthur P. Tiernan, Evansville, Ind., Executive Secretary, Vanderburgh County Medical Society

Panel Discussion

N. Worth Gable, M.D., St. Petersburg, Fla., Pinellas County Medical Society

Stan Witwer, St. Petersburg, City Editor, St. Petersburg *Times*

Christopher J. McLoughlin, M.D., Atlanta, Public Relations Committee, Medical Association of Georgia

William I. Ray Jr., Atlanta, Managing Editor, Atlanta *Journal*

James Murray, Atlanta, Promotion Manager, Atlanta *Journal*

Questions from the Audience

LUNCHEON

12:15 p. m., French Room

What My Readers Write

W. W. Bauer, M.D., Health Columnist, King Features Syndicate

Theodore R. Van Dellen, M.D., Health Columnist, *Chicago Tribune* Syndicate

Herman N. Bundesen, M.D., Health Columnist, King Features Syndicate

PROBLEM SOLVING: HOW CAN MEDICINE'S STORY *BEST* BE TOLD?

2 p. m., Ballroom

Chairman: Hugh W. Brenneman, Lansing, Public Relations Counsel, Michigan State Medical Society

Audience will consider three problems:

Problem One: Case history based on the question: What is the best way to help the general public understand organized medicine?

Problem Two: Case history based on the question: What techniques can be used to help the general public understand the modern physician and how he should be used?

Problem Three: Case history based on the question: What can medicine do to help the general public understand the modern systems of medical care available to them?

Report to general assembly on suggested solutions.

THE INSTITUTE IN REVIEW

4 p. m., Ballroom

Leo E. Brown, Chicago, Director, Department of Public Relations, American Medical Association

RE-SHOWING OF TELEVISION FILMS

4:15 p. m., Ballroom

ADJOURN

5:30 p. m.

FEDERAL MEDICAL LEGISLATION

Guardianship of Indians

Senator Malone (R., Nev.) and Senator Butler (R., Neb.) have introduced a measure, S. 2515, which would give "complete emancipation of the Indians by the removal of guardianship over such Indians, and trusteeship over property, both real and personal, belonging to individual Indians and recognized tribes." Thus the integration of Indians would be complete. The functions of the Bureau of Indian Affairs in the Department of the Interior would be abolished, including hospitalization and medical care. This measure was referred to the Interior and Insular Affairs Committee.

Agency for the Handicapped

A separate agency for the physically handicapped would be established by S. 2570, proposed by Senators Murray (D., Mont.), Johnson (D., Colo.), Kilgore (D., W. Va.), Langer (R., N. Dak.), Magnuson (D., Wash.), Sparkman (D., Ala.), Neely (D., W. Va.), Humphrey (D., Minn.), Kefauver (D., Tenn.), and Lehman (D., N. Y.). This agency would be placed for housekeeping purposes in the Department of Labor. This bill is identical with H. R. 2096 (Hagen), H. R. 2147 (Tollefson), H. R. 2149 (Van Zandt), H. R. 2300 (Rhodes), H. R. 2342 (Wier), H. R. 2346 (Withrow), H. R. 2463 (McCormack), H. R. 2519 (Chudoff), H. R. 3177 (Kelley), H. R. 3188 (Perkins), H. R. 3291 (Celler), H. R. 3473 (Doyle), H. R. 4262 (Donohue), all previously reported. This measure was referred to the Committee on Labor and Public Welfare.

Extension of Social Security

Congressman Heller (D., N. Y.) has introduced H. R. 6664, and Congressman Price (D., Ill.) has introduced H. R. 6723, to broadly revise the old-age and survivors insurance program. These bills would not extend coverage to physicians or dentists. These bills are identical with S. 2260 (Lehman, D., N. Y., and 10 other Senators), H. R. 6034 (Dingell, D., Mich.), H. R. 6035 (Bolling, D., Mo.), H. R. 6036 (Roosevelt, D., N. Y.), H. R. 6041 (Celler, D., N. Y.), H. R. 6042 (Dodd, D., Conn.), H. R. 6043 (Eberharten, D., Pa.), H. R. 6044 (Elliott, D., Ala.), H. R. 6045 (Howell, D., N. J.), H. R. 6046 (Rhodes, D., Pa.), H. R. 6056 (Shelley, D., Calif.), H. R. 6072 (Holifield, D., Calif.), H. R. 6128 (Perkins, D., Ky.), H. R. 6162 (Dollinger, D., N. Y.), H. R. 6163 (Fine, D., N. Y.), H. R. 6164 (Klein, D., N. Y.), H. R. 6175 (Buckley, D., N. Y.), H. R. 6180 (Rodino, D., N. J.), H. R. 6215 (Addonizio, D., N. J.), H. R. 6229 (Metcalf, D., Mont.), all previously reported. These two measures were referred to the House Ways and Means Committeee.

Social Security Extension

Congressman Reed (R., N. Y.), Chairman of the House Ways and Means Committee, has introduced H. R. 6812 at the request of the administration. It would extend social security coverage to about 10,500,000 additional persons, 6,500,000 of whom would be brought into the system by mandatory action. Those required to participate if they earn $400 a year or more include physicians and interns (but not student nurses), dentists, osteopaths, veterinarians, chiropractors, naturopaths, optometrists, Christian Science practitioners, funeral directors, professional engineers, lawyers, architects, accountants, and other professional persons and farmers, plus farm workers and domestics earning $50 or more per quarter from one employer. Other groups, totaling about 4 million, would be offered coverage on a voluntary group basis. Such groups include state and local government employees now enrolled in retirement systems and ministers. The present law giving noncontributory wage credits of $160 a month to members of the armed forces would be continued to July 1, 1955. This bill was referred to the Ways and Means Committee.

Prepared by the Washington Office of the American Medical Association.

MEDICAL NEWS

CONNECTICUT

Course in Physiology.—This course, sponsored by the Stamford Academy of General Practice, will be given by the Post-Graduate Medical School of the New York University-Bellevue Medical Center in the auditorium of the Stamford Hospital under the direction of Dr. Maurice Bruger, New York. It is accredited by the American Academy of General Practice. The sessions (Sept. 22, Oct. 6 and 27, Nov. 3 and 24, Dec. 1 and 22, 1953, and Jan. 7, 1954) will start promptly at 8 p. m. Registration fee is $40. Registration forms may be obtained from Dr. Arthur Koffler, 218 Bedford St., Stamford, secretary, Stamford Academy of General Practice.

Personal.—Dr. C. Louis Fincke, Stamford, was recently appointed to membership on the Connecticut Medical Examining Board to fill the unexpired term of the late Dr. Wilmot C. Townsend, Hartford. Dr. Fincke, who is councilor to the Connecticut State Medical Society for the Fairfield County Medical Association, is director of medical services and vice-chairman of the medical board at Stamford Hospital and attending physician at St. Joseph Hospital, Stamford.——Dr. James E. Lewis Jr., assistant chief of surgery, Veterans Administration Hospital, Newington, and formerly assistant physician to President Truman, has been appointed assistant professor of surgery at the St. Louis University School of Medicine. Dr. Lewis has been affiliated with Peter Bent Brigham Hospital and the Children's Hospital in Boston and Children's Memorial Hospital, Chicago. He served in Europe during World War II and was decorated with the Bronze Star.

DELAWARE

Dr. Washburn Honored.—At the commencement exercises of the University of Delaware, Newark, Dr. Victor D. Washburn, Wilmington, president, Medical Society of Delaware, was awarded the honorary degree of doctor of public health. The citation pointed out that he has served the city of Wilmington as president of the board of education, president of the Department of Public Safety, president of the board of health, and health commissioner and that he has been state director of the Selective Service System and a member of the Delaware National Guard from which he was retired in 1946 with the rank of brigadier general. He is president of the Medical Society of Delaware and medical director of Memorial Hospital. In 1951, Dr. Washburn received the medal of the American Cancer Society in recognition of his important contributions in the control of cancer.

DISTRICT OF COLUMBIA

Practical Instruction for Interns and Residents.—Realizing the need for instruction in office management, medical ethics, medicolegal procedures, and other aspects of practical medical practice, the Medical Society of the District of Columbia has established, as a permanent feature of its activities, a series of question hours on the economics of medicine for interns and residents in that community. The first question hour held recently was attended by more than 90 young physicians who turned out to hear a panel of experts discuss a variety of subjects related to medical practice.

FLORIDA

Physicians Honored.—At its centennial commencement, the University of Florida conferred the honorary degree of doctor of science on Drs. William C. Thomas Sr., Gainesville, and Walter C. Payne Sr., Pensacola, past presidents of the Florida Medical Association, and on Drs. Turner Z. Cason, Jacksonville, and Warren W. Quillian, Coral Gables.

ILLINOIS

Tuberculosis Committee Named.—Governor Stratton has appointed the following as members of an advisory committee on tuberculosis control in Illinois: Drs. Walter S. Broker, East St. Louis; William J. Bryan, Rockford; Kenneth G. Bulley, Aurora; Warren W. Furey, Ernest E. Irons, Karl A. Meyer, David B. Radner, Leo P. A. Sweeney, and Edward A. Piszczek, Chicago; Jerome R. Head, Naperville; G. Daniel Morse, Peoria; Darrell H. Trumpe, Springfield; and Winston H. Tucker, Evanston. Ex-officio members are Dr. Otto L. Bettag, Chicago, director of the Illinois Department of Public Welfare, and Dr. Roland R. Cross, Springfield, director of the Illinois Department of Public Health.

Chicago

Dr. Compere to Head Department.—Dr. Edward L. Compere, associate professor of bone and joint surgery, Northwestern University Medical School, since 1941, has been named chairman of that department to succeed Dr. Philip Lewin, who will retire Aug. 31. Dr. Compere was previously chief of orthopedic service at Albert Merritt Billings Hospital and at the University of Chicago Clinics. He is affiliated with Wesley Memorial, Children's Memorial, Augustana, and Henrotin hospitals. He has served as a consultant in orthopedics at the U. S. Naval Hospital at Great Lakes, Ill., and to the Surgeon General of the Army. Since 1948, Dr. Compere has been a member of the A. M. A. House of Delegates.

Personal.—Dr. Myron Feld has been appointed an associate in psychiatry at the Chicago Medical School. Dr. Feld has been affiliated with the Veterans Administration hospitals in Hines and Downey, Ill.——Dr. Titus M. Johnson has gone to Africa to supervise the completion and operation of a 50-bed hospital being built in the Belgian Congo by the Evangelical Free Church of America. He plans to be gone about 18 months. This is his second visit to Africa as a medical missionary.——Dr. Roberto Ortiz, formerly of San Jose, Costa Rica, has been named recipient of the 1953 Northwestern graduate fellowship in pediatric surgery, the Florence Olmstead memorial fellowship, which will enable him to continue his work in pediatric surgery at Children's Memorial Hospital.

KENTUCKY

Society News.—The Kentucky Surgical Society recently elected Drs. W. Vinson Pierce, Covington, president; R. Arnold Griswold, Louisville, vice-president; and Francis M. Massie, Lexington, secretary and treasurer.

University News.—Faculty members at the University of Louisville School of Medicine, alumni, and friends of the late Dean John Walker Moore have initiated a drive to endow a new chair of medicine in his name. Members of the committee for the drive are Drs. Samuel A. Overstreet, chairman, J. Murray Kinsman, dean, and S. Spafford Ackerly, faculty member, all of Louisville. A John Walker Moore Annual Memorial lectureship also has been established at the school.——Emil Kotcher, Sc.D., associate professor of microbiology, has been given a leave of absence for an assignment with the U. S. P. H. S. as laboratory director of parasitology for the Special Technical and Economic Mission, Mutual Security Agency to the Associated States of Indo-China.——An award of $150 has been made to Drs. Avrom M. Isaacs, Harold F. Berg, and William M. Christophersen for the best scientific paper at the annual meeting in Havana, Cuba, of the Southeastern Section of the American Urological Association. The title of the contribution was "Localization of Radioactivity in the Urinary Bladder and the Regional Lymph Nodes."——The University of Louisville announces the following promotions: Dr. Walter S. Coe to associate professor of medicine and staff executive of the Louisville General Hospital and Drs. Paul Mapother and Maurice M. Best to assistant professor of medicine.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

MAINE

Meeting of Medico-Legal Society.—The Maine Medico-Legal Society held its annual meeting, Aug. 19, at Augusta House in Augusta under the presidency of Dr. Joseph E. Porter, Portland. The business meeting occupied the morning session. After luncheon there were remarks by Dr. Porter, Col. Francis J. McCabe, chief, state of Maine police, and Mr. Alexander A. LaFleur, attorney general. An address with pictures was presented by Dr. Richard Ford, assistant professor of legal medicine, Harvard Medical School, Boston.

MASSACHUSETTS

Society News.—The newly formed Greater Boston chapter of the Massachusetts Heart Association has elected Dr. Harold D. Levine, Boston, president; Dr. Edwin O. Wheeler, Boston, vice-president; and Dr. Egon E. Kattwinkel, Newton, secretary.

Lahey Postgraduate Assembly.—At the Lahey Clinic Postgraduate Assembly, Sept. 24-26, 10 subjects of interest to general practitioners and specialists in many fields will be presented in panel discussions by members of the various departments of the clinic. Emphasis will be placed on particular measures in diagnosis and treatment. Inquiries should be sent to the Lahey Clinic, 605 Commonwealth Ave., Boston 15.

Personal.—Dr. Francis D. Moore, surgeon-in-chief of the Peter Bent Brigham Hospital in Boston, delivered the second annual Herman G. Weiskotten lecture on "The Growth of Our Knowledge of Metabolism and Biology in Surgery" at the Syracuse Medical Alumni Association meeting May 28.——Dr. Benjamin Alexander, associate director of medical service at Beth Israel Hospital, Boston, has been appointed associate professor of medicine at Harvard Medical School and will serve in the dual role. Dr. Alexander has been teaching at Harvard Medical School since 1939.

MISSOURI

Society News.—At a special meeting of the St. Louis Medical Society, Sept. 25, 8:30 p. m., Dr. Melvin A. Casberg of the Armed Forces Medical Policy Council, Washington, D. C., will discuss "Military Medicine at the Department of Defense Level."

University News.—Dr. James W. Colbert Jr., dean of St. Louis University School of Medicine, recently delivered the annual William H. Vogt lecture, which is sponsored by the Alpha Mu Chapter, Alpha Kappa Kappa fraternity, in honor of the late Dr. William Hans Vogt, director of the department of obstetrics and gynecology, St. Louis University School of Medicine, from 1933 until his death in 1945.——Dr. Justin J. Cordonnier has joined the full-time faculty of Washington University School of Medicine, St. Louis, as professor of urology and head of the section of urology of the department of surgery. His offices will be at David P. Wohl Jr. Memorial Hospital, 4960 Audubon St. Dr. Cordonnier was associate professor of clinical genitourinary surgery at the school of medicine from 1950 to 1952. He served four years with the armed services medical corps.

MONTANA

Society News.—The Yellowstone Valley Medical Society has named Dr. Edward W. Gibbs, president; Dr. L. Clayton Allard, vice-president; Dr. Robert E. Mattison, secretary; and Dr. John J. Hammerel, treasurer (reelected). All officers are from Billings.

Surgeons Meet in Missoula.—The Montana chapter of the American College of Surgeons will meet in Missoula, Aug. 29. Guest speakers will be Dr. Walter C. MacKenzie, clinical professor of surgery, University of Alberta Faculty of Medicine, Edmonton, Canada, and Dr. Louis H. Edmunds, orthopedic staff, Virginia Mason Hospital, Seattle. Mr. John E. Corette, president of the Montana Power Company, guest speaker at the banquet, will talk on "The Physicians and the Power Companies in the National Picture." All physicians are cordially invited.

NEBRASKA

General Practitioners Meet.—A meeting of the Nebraska Academy of General Practice will be held Sept. 3 at the Fort Kearney Hotel in Kearney. The following program, open to all physicians, will be presented:

Lynn W. Thompson, Omaha, Regional Block Anesthesia (Slides and Models).
Charles W. McLaughlin Jr., Omaha, Hand Injuries: Surgical Management.
John D. Hartigan, Omaha, Management of Hypertension (New Drugs).
Frederick S. Webster, Lincoln, Congenital Hips: Their Management.
Paul D. Bruns, Denver, Problems in Prematurity.
Donald C. Campbell, Rochester, Minn., Problems Related to the Anemias.

NEVADA

Meeting of Reno Surgical Society.—The annual meeting of the Reno Surgical Society was scheduled for the Hotel Riverside, Aug. 20-22. Guest speakers and their first presentations include:

Hyrum R. Reichmann, Salt Lake City, Diagnosis and Treatment of Common Anorectal Lesions.
Max Samter, Chicago, Old and New Drugs and the Progress of Medicine.
Robert E. Gross, Boston, Surgery for Congenital Cardiovascular Anomalies.
Kenneth C. Swan, Portland, Ore., Emergency Care of Eye Injuries.
Russel H. Patterson, New York, Surgery of the Pancreas and Biliary Tract.
Fredrick J. Stare, Boston, Nutrition and the Surgeon.
Moore Moore, Memphis, Tenn., Intrinsic Causes of Shoulder Pain.
Erle Henriksen, Los Angeles, Problems of Stress Incontinence.
Owen H. Wangensteen, Minneapolis, The Extended Operation for Cancer.
Mr. Perry Burgess, president, General Leonard Wood Memorial (American Leprosy Foundation), New York, The Orphan of Diseases.

A round table discussion by all members of the speakers panel ended the meeting. Dr. John W. Cline, San Francisco, Past President of the American Medical Association, served as moderator.

NEW YORK

Hutchings Memorial Lecture.—Dr. Bernard C. Glueck Jr., director of the Sex Offender Research Project of the New York State Department of Mental Hygiene and supervising psychiatrist at Sing Sing Prison, Ossining, will deliver the annual Hutchings Memorial lecture ("Psychodynamic Patterns in the Sex Offender"), Oct. 5, in the auditorium of the State University of New York College of Medicine at Syracuse. The lectures are cosponsored by the Dr. Richard H. Hutchings Memorial Trust Fund Committee, the Onondaga County Medical Society, the Syracuse Academy of Medicine, and the State University of New York College of Medicine at Syracuse.

Personal.—Dr. Giles F. Filley, Associated College of Physicians, has been appointed head of the physiology department of the Trudeau Sanatorium and Foundation in Saranac Lake, succeeding Dr. George W. Wright, who has resigned to become director of a department of research at St. Luke's Hospital in Cleveland. Dr. Filley has been associated with Dr. Wright at Trudeau since 1947.——Dr. Irving N. Holtzman, Brooklyn, has been promoted to attending dermatologist at the Jewish Hospital of Brooklyn to succeed the late Dr. Jacob Skeer. Dr. Holtzman is also associate clinical professor of dermatology and syphilology at New York University College of Medicine-Bellevue Medical Center and attending dermatologist at the Kingston Avenue and John E. Jennings hospitals and the Jewish Sanitarium and Hospital for Chronic Diseases, Brooklyn.

New York City

Occupational Medicine Course.—A series of lectures on occupational medicine will be given 9-10 a. m. on Saturdays beginning Sept. 19 in amphitheater A, Columbia University College of Physicians and Surgeons, 630 W. 168th St., New York 32, by members of the staff of the division of occupational medicine of the school of public health. Members of the medical and allied professions are invited to attend. There will be no formal registration and no tuition fee. The schedule is as follows:

Sept. 19, History, Scope, Objectives, and Practice of Occupational Medicine.
Sept. 26, Industrial Toxicology—General Principles.
Oct. 3, Toxic Metals, I.
Oct. 10, Toxic Metals, II.
Oct. 17, Toxic Dusts.
Nov. 7, Toxic Gases.
Nov. 14, Occupational Dermatoses and Infections.
Nov. 21, Ventilation; Lighting; Noise.
Nov. 28, Elementary Nuclear Physics; Radiation Hazards.
Dec. 5, Workmen's Compensation.
Dec. 12, Written Examination (optional).

The order in which the topics are presented may be modified depending on the availability of lecturers.

Dr. Fitzgerald Named Professor of Pathology.—Dr. Patrick James Fitzgerald, assistant pathologist, Memorial Center for Cancer and Allied Diseases, and assistant, department of physics, Sloan-Kettering Institute for Cancer Research, has been appointed chairman of the department of pathology at the State University of New York College of Medicine in Brooklyn. Dr. Fitzgerald, who is also assistant professor of pathology at the Sloan-Kettering division of Cornell University Medical College, succeeds Dr. Jean R. Oliver, who has been granted special leave by the state university to engage in research for the Armed Forces Epidemiological Board on the renal lesion of epidemic hemorrhagic fever. Dr. Fitzgerald has been affiliated with Boston City Hospital and Tufts College Medical School, Boston. At the Memorial Center for Cancer and Allied Diseases, he was a National Cancer Institute research fellow in several studies, including tumor pathology, x-ray absorption, and isotope techniques. From 1949 to 1950, he served as a Sloan-Kettering Institute fellow at the Institute for Cell Research, Karolinska Institutet, Stockholm, Sweden, on studies in ultraviolet microscopy and on x-ray absorption. From 1943 through 1946, he served as pathologist and tropical disease officer for several U. S. Naval hospitals.

OHIO

Community Honors Physician.—The mayor of New Bremen declared, by proclamation, July 30 "Dr. F. F. Fledderjohann Day," in honor of Dr. Ferdinand F. Fledderjohann who, during his 50 years of medical practice, "exemplified the virtues of kindliness, unselfishness, generosity, honesty, and patience, together with a brilliant background of medical knowledge. . . ."

Popular Health Television Shows.—The Cleveland Health Museum and the Academy of Medicine of Cleveland recently used television as the medium for presenting 16 one-half hour "Prescription for Living" shows sponsored by the Standard Oil Company of Ohio. Each show, handling one subject, utilized a typical Ohio family whose lack of understanding of medical practices made it a foil for the guest physician from the Academy of Medicine, who exposed the common fallacies on the subject. Health museum exhibits were employed as visual aids. Interest in the programs was shown in the mail requests for the free digests offered, the highest, 2,100, being received for the program, "Shorter Waistline—Longer Lifeline." Sample digests sent to teachers of Cleveland public schools brought requests from 3,200 teachers to receive the digests weekly. Other school systems also requested them. The television show "Prescription for Living" will be resumed in September for 26 weeks. Limited numbers of digests of the first series are available from the Cleveland Health Museum, 8911 Euclid Ave., Cleveland 6.

PENNSYLVANIA

Benjamin Rush Awards.—The Medical Society of the State of Pennsylvania has announced the winners of the Benjamin Rush Award presented annually to a layman and a group performing outstanding services in the field of health. Winners were selected from a group of 62 nominees submitted by the individual county medical societies in Pennsylvania. The group award was won by the Committee of Five (Berwick Blood Procurement Plan of Columbia County) whose efforts made it possible for the city of Berwick to more than double its annual blood quota. T. Ellwood Sones, Mt. Jewett, county school superintendent in Centre County, won the individual award for meritorious work in rural health, including establishment of the first county-wide rural school nurse program in Pennsylvania.

Personal.—Dr. Max B. Lurie, associate professor of experimental pathology at the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis, an affiliate institute of the University of Pennsylvania, Philadelphia, has won the Claude Bernard medal bestowed by the University of Montreal, Canada. The award, given after Dr. Lurie delivered a series of lectures at the University of Montreal before the Institute of Experimental Medicine and Surgery and the Institute of Microbiology, was made on the basis of Dr. Lurie's work on genetic resistance to tuberculosis, the role of sex hormones in resistance, the effect of cortisone and corticotropin (ACTH) on the pathogenesis of tuberculosis, and the nature of acquired resistance in the light of hormonal influences on native resistance.——Drs. Jacob A. Trexler, Lehighton, Roger P. Batchelor, Palmerton, and C. Howard Moses, Sharon, recently received 25 year awards for their service to crippled children. The awards were presented at testimonial dinners given by county crippled children's societies.

Pittsburgh

Narcotic Violation.—Dr. Wayne E. Backus pleaded guilty in the U. S. District Court at Pittsburgh to violation of USC Title 18, Section 494. On June 17 sentence was suspended, and he was placed on probation for a period of one year and ordered to pay the costs of the prosecution ($49) and was fined $100. According to the Bureau of Narcotics, it was the opinion of the court that Dr. Backus should be permitted to pursue the practice of medicine and surgery during the period of his probation.

Scaife Fellowships in Pathology.—The University of Pittsburgh announces the establishment of the Sarah Mellon Scaife fellowships in pathology. Under the fellowships, which will provide experience in research, teaching, and diagnostic pathology, three years will be spent in the department of pathology, University of Pittsburgh, and arrangements will be made for one year at another medical center of the applicant's choice. One fellow will be appointed each year for a four year term, with annually increased stipends as follows: $3,000, $3,300, $3,700, and $4,000. The applicant, a graduate of an approved medical school, must apply by Nov. 1 for a fellowship beginning July 1 of the following year. Notice of selection will be made by Dec. 15. Further information and application forms are available from Dr. Frank J. Dixon, Department of Pathology, University of Pittsburgh, Pittsburgh 13.

SOUTH CAROLINA

Joint Meeting of Ophtho-Otolaryngologists.—A joint meeting of the South Carolina Society of Ophthalmology and Otolaryngology and the North Carolina Eye, Ear, Nose and Throat Society will be held at the Francis Marion Hotel, Charleston, Sept. 14-16. Out-of-state speakers include: Drs. Wayne B. Slaughter, Derrick T. Vail, and John R. Lindsay, Chicago; Theodore E. Walsh, St. Louis; David G. Cogan, Boston; and R. Townley Paton, New York. There will be a panel discussion on vertigo with Dr. E. Charles Kunkle, Duke University School of Medicine, Durham, N. C., as guest neurologist and Dr. Vince Moseley, Medical College of South Carolina, Charleston, as guest internist. For information write Dr. George B. Ferguson, McPherson Hospital, Durham, N. C., or Dr. Roderick Macdonald, 330 E. Main St., Rock Hill.

Annual Scientific Meeting.—The Self Memorial Hospital will hold its annual scientific meeting at Greenwood, Aug. 29. Dr. Manuel E. Lichtenstein, Chicago, will speak on "The Essential Differences Between the Two Halves of the Colon" and "Improving End Results Following Cholecystectomy." Dr. Joseph G. Kostrubala, Chicago, will discuss "Carcinoma of Head and Neck with Emphasis on Intraoral Diagnosis" and "Problems of Maxillofacial Surgery." Presentations will be made by Dr. David F. James, Emory University, Ga. ("Differential Diagnosis of Jaundice"); Dr. Willard H. Parsons, Vicksburg, Miss. ("Cancer of the Breast"); and George C. Albright, D.D.S., Greenville ("Use of General Anesthesia in Office Practice of Oral Surgeon"). A social hour at the Moose Club preceding the banquet, 7:30 p. m., at the Oregon Hotel will be addressed by Mr. W. C. Walkup, Knoxville, Tenn. Dr. Lawrence P. Thackston, Orangeburg, former president of the South Carolina Medical Association, will present the association's plaque to Mr. J. C. Self.

UTAH

Narcotic Violation.—Dr. James W. Nixon, 593 N. University Ave., Provo, pleaded guilty to an indictment charging violation of USC Title 26, Section 2554, in the U. S. District Court at Salt Lake City, and on April 15 was fined $100 on counts 1 to 5 inclusive and on count 6 was placed on probation for five years.

Personal.—Dr. Warren A. Colton, manager of the Veterans Administration Hospital, Salt Lake City, was recently honored at a public reception in the hospital auditorium on the occasion of his retirement at the age of 70.——Herbert L. Borison, Ph.D., assistant professor of pharmacology, University of Utah College of Medicine, Salt Lake City, recently received from the American Society for Pharmacology and Experimental Therapeutics the John J. Abel award for studies on the pharmacology and physiology of brain stem functions with special reference to respiration, circulation, and vomiting.

Dr. Calderwood Retires as Medical Director.—Dr. William R. Calderwood, Salt Lake City, medical director of the Beneficial Life Insurance Company since its organization, has retired from that position but will continue to serve as a member of the board of directors. Dr. Calderwood, who is a past president of the Utah State Medical Society, has been president of the hospital board of Latter Day Saints Hospital, Logan, president of the board of directors of the Medical Arts Building, a member of the board of the state mental hospital, and president of the Emeritus Club of the University of Utah, Salt Lake City. Succeeding him as medical director is Dr. Maurice J. Taylor.

WISCONSIN

Dr. Bailey Day.—Dr. Mark A. Bailey, Fennimore, who has served his community for 50 years, was honored at celebrations sponsored by the Kiwanis Club, the American Legion post and its auxiliary, and the Fennimore city council. The celebration included a parade, speeches, and a social hour. Dr. Bailey, who started practice in association with his father, the late Dr. A. B. Bailey, in May of 1903, has served as mayor, as health officer, and in community organizations.

GENERAL

Hearing Society to Move Headquarters.—The American Hearing Society has announced plans to move its national headquarters from Washington, D. C., where it has been located since 1922, to Columbus, Ohio. Affiliated with the society, a nonprofit, social service organization founded in 1919, are 115 local chapters in 34 states, the District of Columbia, and Canada. The organization, which has as its objectives the prevention of deafness, conservation of hearing, and rehabilitation of the hard of hearing, is supported by membership dues from persons and chapters, and contributions from persons and community chests. It is anticipated that operational costs will be lowered by the proposed move.

March of Dimes Establishes New Record.—Mr. Basil O'Connor, president of the National Foundation for Infantile Paralysis, announces that a record amount of $51,500,000 was contributed to the 1953 March of Dimes, an increase of 24% over the 1952 collection. The new record shows contributions of 34 cents per capita against last year's record of 27.5 cents per capita for the entire nation. All states exceeded their 1952 contributions. Nevada ranked first with an average per capita contribution of 94 cents, Wyoming second with 69 cents, and Idaho third with 65 cents. Alaska led all territories with a per capita average of 79 cents. In dollar contributions New York state took first place with $5,098,000. California residents contributed $4,426,000 and Ohio $3,074,000.

Life Insurance Medical Research Fellowships.—The Life Insurance Medical Research Fund announces that applications for awards available July 1, 1954, will be received as follows: (1) postdoctoral research fellowships ($3,300-$4,500), until Oct. 31, preference being given to those who wish to work on cardiovascular function and disease or related fundamental problems and (2) grants to institutions in aid of research on cardiovascular problems, until Nov. 15. Support is available for physiological, biochemical, and other basic work broadly related to cardiovascular problems as well as for clinical research in this field. Information may be obtained from the Scientific Director, Life Insurance Medical Research Fund, at the new headquarters, 345 E. 46th St., New York 17.

Cancer Society Approves Training Institutes.—The American Cancer Society announces that three additional institutions have been approved by its board of directors for training American Cancer Society fellows in exfoliative cytology. These institutions and the directors of the laboratory of exfoliative cytology are Memorial Center for Cancer and Allied Diseases, New York (Drs. Howard Richardson and Emerson Day), Roosevelt Hospital, New York (Dr. Walter W. Brandes), and Jewish Hospital of St. Louis, St. Louis, Mo. (Dr. Herman T. Blumenthal). Further information concerning the society's support in training qualified pathologists in this field may be procured from Dr. Brewster S. Miller, director, Professional Education Section, American Cancer Society, 47 Beaver St., New York 4.

Meeting of Bacteriologists.—The Society of American Bacteriologists held its 53rd general meeting as guests of the Northern California-Hawaii Bacteriologists at the Palace Hotel, San Francisco, Aug. 10-14, under the presidency of Dr. Gail M. Dack, Chicago. The 100 papers presented before the medical division were devoted to virus multiplication, pathogens of animal origin, viruses and rickettsia, radiation, viruses and hemagglutination, enteric bacteriology, immunology, mycobacteria, antibiotics, and miscellaneous studies. Symposiums were held on "Energy Utilization in Synthetic Reactions," "Radiation Effects on Cells and Bacteria," "History of Bacteriology," "Role of Infection in Radiation Injury," and "The Actinomycetes." At the opening session Monday evening, Dr. William M. Stiles, Berkeley, Calif., delivered a special lecture entitled "A Challenge for Modern Bacteriologists."

Retina Service Fellowship.—This fellowship, created by the Retina Foundation, will be granted to a young ophthalmologist from the United States or abroad who wishes to be trained for 6 to 12 months at the retina service of the Massachusetts Eye and Ear Infirmary, Boston. Remuneration is $1,000 per annum plus room, board, and laundry at the infirmary. Training covers methods of examination of the extreme periphery of the fundus and the vitreous, use of the indirect stereoscopic ophthalmoscope and scleral depressor, and surgical procedures in cases of retinal detachment. Original research of a clinical nature will be encouraged. Candidates must have completed a residency in ophthalmology or have had comparable training.

Applications, accompanied by a biography and at least two references, should be mailed to Dr. Edwin B. Dunphy, Chief of Ophthalmology, Massachusetts Eye and Ear Infirmary, 243 Charles St., Boston 14.

Grant for Study of Hospital Design.—The Rockefeller Foundation has made a grant of $140,000 to the American Psychiatric Association, Washington, D. C., for the study of mental hospital design, construction, and equipment. In cooperation with the American Institute of Architects, the American Psychiatric Association is planning the development of mental hospitals in the light of current needs. It has been estimated that 6 billion dollars could usefully be spent in the next 10 years to provide the space needed and to replace outworn equipment. A committee of the two professions will give full time to studying the best available examples of mental hospital construction in this and in other countries and to conferring with hospital superintendents on present trends in the care of the mental patient. This committee, to be financed for two years by the above grant, will draw up sample plans and provide advisory service to authorities responsible for new construction.

Conference on Food Protection.—The first National Conference on Food Protection, recently held at Ann Arbor, Mich., was sponsored by the National Restaurant Association and public health officials, under the auspices of the National Sanitation Foundation, with headquarters at the University of Michigan School of Public Health. The conference considered the need for a more uniform approach to the problems of preparing and serving foodstuffs and beverages in a sanitary manner in the home, at schools, in hospitals, at church and other "socials," in industry, and at all public eating establishments. Special committees were appointed during the conference to recommend action in two principal areas: (1) launching a nation-wide sanitation educational program for the public, sanitation officials, and food handlers on the safest and best methods to protect food and (2) working toward national uniformity in official health regulations and ordinances governing food protection.

Accidental Fatalities Among Young Children.—According to the Metropolitan Life Insurance Company, accidents currently account for one-fourth of all deaths among children at ages 1 to 4 insured by them in the United States and Canada and take a far higher toll than any other cause of death. In their study of various types of fatal injuries among the insured children, motor vehicle accidents accounted for 35.8% of all injuries; conflagrations and burns by other means, 28.2%; drownings, 11.3%; poisoning, 5.1%; falls, 4.6%; choking by objects or food, 4.2%; and other causes, 10.8%. In association with the committee on accident prevention of the American Academy of Pediatrics, the company has prepared a booklet entitled "A Formula for Child Safety," which discusses the typical development and behavior of preschool children, identifies safety hazards in and about the home, and suggests precautions to avert accidents. Copies of the booklet are distributed to parents and others without charge by the company's representatives and at its offices.

Society News.—The New England Society of Anesthesiologists recently elected Drs. Stevens J. Martin, Hartford, Conn., president; Elihu Saklad, Providence, R. I., vice-president; and Francis J. Audin, Boston, secretary-treasurer. On Oct. 16, the society will hold a joint meeting with the Massachusetts Society of Anesthesiologists in Boston.——At its annual meeting in New Orleans the Association of Bone and Joint Surgeons elected Drs. Frederick F. Teal Jr., Lincoln, Nebr., president; Edward T. Evans, Minneapolis, first vice-president; Louis W. Breck, El Paso, Tex., second vice-president; Lee C. Schlesinger, New Orleans, secretary; and Dana M. Street, Memphis, Tenn., treasurer. The next annual meeting will be held in Augusta, Ga.——At the annual meeting in New York, the American Medical Women's Association, Inc., elected Drs. Judith E. Ahlem, Livermore, Calif., president; Camille Mermod, Newark, N. J., president-elect; Minnie L. Maffett, Dallas, Tex., and Ruth E. Lesh, Fayetteville, Ark., vice-presidents; Elizabeth H. R. Fischer, Chicago, treasurer; Helena Hoelscher, Cleveland, assistant treasurer; Dorothy A. Haasch Chess, Ventura, Calif., recording secretary; and Charna G. Perry, Sausalito, Calif., corresponding secretary.

Meetings on Physical Medicine and Rehabilitation.—The American Society of Physical Medicine and Rehabilitation will hold its annual session at the Palmer House, Chicago, Aug. 31. The meeting will open with a discussion on "Method of A. M. A. Residency Approval" by Dr. Edward H. Leveroos, director, division of hospitals and graduate medical education, A. M. A. Council on Medical Education and Hospitals. Dr. Walter M. Solomon, Cleveland, will serve as moderator for a panel discussion on "New Concepts in Treatment of Rheumatic Diseases," in which Dr. Gordon M. Martin, Rochester, Minn., will discuss rheumatoid arthritis; Dr. Arthur L. Watkins, Boston, degenerative joints; and Dr. Frances Baker, San Mateo, Calif., nonarticular rheumatism.

The American Congress of Physical Medicine and Rehabilitation will hold its annual session at the Palmer House, Aug. 31 to Sept. 4, under the presidency of Dr. Walter M. Solomon, Cleveland. Tuesday morning a preliminary report on "Results of a Combined Medical and Rehabilitation Program in Tuberculosis" will be presented by Albert Haas, New York (by invitation), Dr. Howard A. Rusk, New York, and Morton Zivan, M.A., New York (by invitation). Wednesday morning there will be a symposium on ultrasound. Wednesday afternoon the third John Stanley Coulter Memorial lecture, "A Medical Physicist Looks at Physical Medicine," will be presented by invitation by Otto Glasser, Ph.D., Cleveland. Sixty-two papers are scheduled for presentation, and 10 will be read by title.

Awards Announced by Chest Physicians.—At the annual president's banquet in New York, the American College of Chest Physicians awarded to Dr. Helen B. Taussig, physician-in-charge, Cardiac Clinic, Harriet Lane Home, Johns Hopkins Hospital, Baltimore, the gold medal of the college for her pioneering work in congenital diseases of the heart. Essay awards were made as follows: Dr. A. Link Koven, Philadelphia, $250 and first prize certificate for "Bronchogenic Carcinoma in Chromate Workers"; Dr. Adrian M. Sabety, East Orange, N. J., second prize certificate for "Contralateral Spontaneous Pneumothorax as a Complication of Intrathoracic Operations"; and Dr. William R. Halliday, Salt Lake City, third prize certificate for "Endomyocardial Fibroelastosis."

Railroad Expands Medical Service.—Dr. Norbert J. Roberts, Philadelphia, medical director of the Pennsylvania Railroad, announces expansion and reorganization of the medical department, involving a staff of 56 full time physicians, about 350 consultant physicians and surgeons, and additional health maintenance centers and medical equipment. The program will encompass all phases of industrial medicine, including health education, preventive medicine, frequent physical examinations when indicated, and closer control of working conditions. It will supplement, but in no way replace, the care employees receive from their family physicians.

Dr. Alexander M. W. Hursh, Philadelphia, the railroad's chief medical examiner since 1945, has been advanced to assistant medical director. Dr. Charles W. Asbury, Hamilton, Ohio, formerly a fellow in the department of preventive medicine and industrial health, University of Cincinnati College of Medicine, has been appointed regional medical officer for the central region at Pittsburgh. Dr. Donald L. Glenn, staff internist at Carle Memorial Hospital and Clinic and McKinley Memorial Hospital, Urbana, Ill., becomes regional medical officer for the eastern region at Philadelphia. Dr. Nathaniel J. Fine, district medical examiner at Altoona, Pa., is advanced to medical officer, Altoona Works.

Dr. Roberts also announced appointment of the following medical staff specialists in internal medicine: at Philadelphia, Dr. William M. Woodward, until recently in private practice at Bristol, Pa.; at Altoona, Dr. David W. Bishop, former chief of medicine at the U. S. Marine Hospital, Mobile, Ala.; and, at New York, Dr. Patrick H. Curran, formerly on the staff of Bellevue Hospital, New York. Divisional and local medical officers are to be appointed within the next few weeks.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

Area	Aug. 8, 1953		Aug. 9, 1952 Total
	Paralytic Type	Total Cases Reported	
New England States			
Maine	7	8	5
New Hampshire	..	8	8
Vermont	5	8	1
Massachusetts	8	19	45
Rhode Island	4	10	2
Connecticut	4	24	19
Middle Atlantic States			
New York	30	125	129
New Jersey	..	51	38
Pennsylvania	..	53	75
East North Central States			
Ohio	17	119	180
Indiana	..	46	40
Illinois	34	117	206
Michigan	48	158	225
Wisconsin	..	80	98
West North Central States			
Minnesota	31	139	162
Iowa	14	48	192
Missouri	15	58	37
North Dakota	4	14	7
South Dakota	..	5	13
Nebraska	4	12	126
Kansas	..	18	71
South Atlantic States			
Delaware	..	1	9
Maryland	15	32	5
District of Columbia	2	7	11
Virginia	17	47	67
West Virginia	13	39	57
North Carolina	15	51	20
South Carolina	3	10	2
Georgia	11	38	10
Florida	4	22	23
East South Central States			
Kentucky	13	28	94
Tennessee	15	62	37
Alabama	17	39	14
Mississippi	..	22	37
West South Central States			
Arkansas	15	21	18
Louisiana	7	19	17
Oklahoma	12	36	53
Texas	19	81	200
Mountain States			
Montana	1	6	11
Idaho	..	4	20
Wyoming	3	7	5
Colorado	9	16	27
New Mexico	..	7	36
Arizona	11	31	22
Utah	..	8	4
Nevada	1	5	4
Pacific States			
Washington	..	14	53
Oregon	3	13	12
California	66	157	95
Territories and Possessions			
Alaska	..	..	1
Hawaii	2	3	5
Puerto Rico	..	..	1
Total	499	1,886	2,649

CORRECTIONS

Acrodermatitis Enteropathica.—In the article by this title in The Journal, June 6, 1953, page 512, second line from the top, the words "four times a day" should follow "the administration of 210 mg."

Method and Machine for Resuscitation of the Newborn.—In the article by this title in The Journal, Aug. 1, 1953, page 1333, the following credit lines were inadvertently omitted: Dr. R. C. Ritchie, Department of Pathology, Hospital for Sick Children, Toronto, obtained the tracheal catheter measurements in a series of autopsies. Mr. Percy Hermant and his staff at the Imperial Surgical Company assumed the cost of building the pilot model of the machine and gave active cooperation and keen interest as well. Paul Aldwyn of the same company supplied technical assistance.

MEETINGS

American Medical Association: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Clinical Session, St. Louis, Dec. 1-4.

1954 Annual Session, San Francisco, June 21-25.

1954 Clinical Session, Miami, Florida, Nov. 30-Dec. 3.

1955 Annual Session, Atlantic City, N. J., June 6-10.

1955 Clinical Session, Boston, Nov. 29-Dec. 2.

National Conference on Physicians and Schools, Moraine-on-the-Lake Hotel, Highland Park, Ill., Sept. 30-Oct. 2. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago 10, Director.

Public Relations Institute, Drake Hotel, Chicago, Sept. 2-3. Mr. Leo E Brown, 535 North Dearborn St., Chicago 10, Director.

American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago, Oct. 12-16. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

American Academy of Pediatrics, Municipal Auditorium, Miami, Fla., Oct. 6-9. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Secretary.

American Association of Medical Clinics, Congress Hotel, Chicago, Oct. 9-11. Dr. Edwin P. Jordan, P. O. Box 114, Charlottesville, Va., Executive Director.

American Association of Medical Record Librarians, Palace Hotel, San Francisco, Oct. 5-9. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, The Homestead, Hot Springs, Va., Sept. 10-12. Dr. William F. Mengert, 2211 Oak Lawn Ave., Dallas, Texas, Secretary.

American Association for the Surgery of Trauma, Drake Hotel, Chicago, Oct. 1-3. Dr. James K. Stack, 700 North Michigan Blvd., Chicago, Secretary.

American College of Surgeons, Conrad Hilton Hotel, Chicago, Oct. 5-9. Dr. Michael L. Mason, 40 East Erie St., Chicago, Secretary.

American Congress of Physical Medicine, Palmer House, Chicago, Aug. 31-Sept. 4. Dr. Walter J. Zeiter, 30 North Michigan Ave., Chicago 2, Executive Director.

American Dietetic Association, Los Angeles, Aug. 24-28. Miss Ruth M. Yakel, 620 N. Michigan Ave., Chicago 11, Executive Secretary.

American Fracture Association, Mission Inn, Riverside, Calif., Oct. 12-15. Dr. H. W. Wellmerling, 120 S. LaSalle St., Chicago 3, Secretary.

American Hospital Association, San Francisco, Aug. 31-Sept. 3. Mr. George Bugbee, 18 East Division St., Chicago 11, Executive Director.

American Medical Writers' Association, Elk's Club, Springfield, Ill., Sept. 23. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

American Roentgen Ray Society, Netherland Plaza, Cincinnati, Sept. 29-Oct. 2. Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretary.

American Society of Anesthesiologists, Olympic Hotel, Seattle, Oct. 6-9. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago, Secretary.

American Society of Clinical Pathologists, Drake Hotel, Chicago, Oct. 12-16. Dr. Clyde G. Culbertson, 1040 W. Michigan St., Indianapolis, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Fall Meeting, Yale University, New Haven, Conn., Sept. 7-9. Dr. Carl C. Pfeiffer, 1853 West Polk St., Chicago 12, Secretary.

Association of Life Insurance Medical Directors of America, Hotel Statler, New York, Oct. 14-16. Dr. Henry B. Kirkland, P. O. Box 594, Newark 1, N. J., Secretary.

Association of Medical Illustrators, Sheraton Hotel, Baltimore, Oct. 5-7. Miss Evelyn J. Erickson, 1512 St. Antoine St., Detroit 26, Secretary.

Biological Photographic Association, Hotel Statler, Los Angeles, Aug. 31-Sept. 3. Miss Jane H. Waters, 533 West 57th St., New York 19, Secretary.

Central Neuropsychiatric Association, Claypool Hotel, Indianapolis, Oct. 15-17. Dr. Hamilton Ford, 112 North Blvd., Galveston, Texas, Secretary.

College of American Pathologists, Drake Hotel, Chicago, Oct. 12-16. Dr. Harry P. Smith, 203 N. Wabash Ave., Chicago 1, Secretary.

Colorado State Medical Society, Shirley-Savoy Hotel, Denver, Sept. 29-Oct. 2. Mr. Harvey T. Stethman, 835 Republic Bldg., Denver 2, Executive Secretary.

Delaware, Medical Society of, Hotel du Pont, Wilmington, Oct. 12-14. Dr. Andrew M. Gehret, 822 North American Bldg., Secretary.

District of Columbia, Medical Society of the, Hotel Statler, Washington, Oct. 5-7. Mr. Theodore Wiprud, 1718 M St. N.W., Washington 6, Secretary.

Gerontological Society, Mark Hopkins Hotel, San Francisco, Aug. 25-27. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

Gulf Coast Clinical Society, Admiral Semmes Hotel, Mobile, Ala., Oct. 15-16. Dr. William J. Atkinson Jr., 1217 Government St., Mobile 20, Ala., Secretary.

Gulf Coast Conference on Industrial Health, Shamrock Hotel, Houston, Tex., Oct. 1-3. Dr. Sidney Schnur, 411 Medical Arts Bldg., Houston 2, Tex., Vice Chairman.

Kansas City Southwest Clinical Society, Kansas City, Mo., Sept. 28-Oct. 1. Dr. W. H. Algie, 825 North 7th Street, Kansas City, Kans., Secretary.

Kentucky State Medical Association, Brown Hotel, Louisville, Sept. 22-24. Dr. Bruce Underwood, 620 South Third St., Louisville 2, Secretary.

Michigan State Medical Society, Pantlind Hotel and Civic Auditorium, Grand Rapids, Sept. 23-25. Dr. L. Fernald Foster, 606 Townsend St., Lansing 15, Secretary.

Mississippi Valley Medical Society, Springfield, Ill., Sept. 23-25. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Montana Medical Association, Northern Hotel, Billings, Sept. 17-20. Mr. L. R. Hegland, 104 North Broadway, Billings, Executive Secretary.

National Gastroenterological Association, Hotel Biltmore, Los Angeles, Oct. 12-17. Dr. A. Xerxes Rossien, 1819 Broadway, New York 23, Secretary.

Neurosurgical Society of America, The Broadmoor, Colorado Springs, Colo., Sept. 23-27. Dr. C. D. Hawkes, 22 North Manassas St., Memphis 5, Tenn., Secretary.

Nevada State Medical Association, Carter Hotel, Elko, Sept. 24-26. Dr. William A. O'Brien III, 505 Chestnut St., Reno, Secretary.

New Hampshire Medical Society, Equinox House, Manchester, Vt., Oct. 4-6. Dr. Deering G. Smith, 44 Chester St., Nashua, Secretary.

Northern Minnesota Medical Association, Fergus Falls, Aug. 28-29. Dr. C. L. Oppegaard, Crookston, Secretary.

North Pacific Society of Internal Medicine, Harrison, B. C., Canada, Sept. 18-19. Dr. Clarence C. Pearson, 1115 Terry Ave., Seattle 1, Wash., Secretary.

North Texas-Southern Oklahoma Fall Clinical Conference, Wichita Falls, Texas, Sept. 16. Dr. C. H. Wilson, 1300 Eighth St., Wichita Falls, Texas, Secretary.

Oregon State Medical Society, Heathman Hotel, Portland, Oct. 14-17. Dr. Charles E. Littlehales, 833 S.W. Eleventh Ave., Portland 5, Secretary.

Pennsylvania, Medical Society of the State of, William Penn Hotel, Pittsburgh, Sept. 21-24. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

Regional Meetings, American College of Physicians:

North Dakota, Fargo, Sept. 12. Dr. Robert B. Radl, 221 Fifth St., Bismarck, Governor.

Arkansas-Oklahoma, Tulsa, Okla., Sept. 19. Dr. Wann Langston, 117 North Broadway, Oklahoma City 2, Governor.

Western New York, Syracuse, Oct. 9. Dr. E. C. Reifenstein, 109 South Warren St., Syracuse 2, Governor.

Ohio, Dayton, Oct. 9. Dr. Charles A. Doan, Ohio State University College of Medicine, Columbus 10, Governor.

Montana-Wyoming, Missoula, Mont., Oct. 9-10. Dr. Harold W. Gregg, 127 West Park Street, Butte, Mont., Governor.

Southeastern—Cuba, Alabama, Florida, Georgia, South Carolina—St. Simons, Sea Island, Ga., Oct. 16-17. Dr. Carter Smith, 384 Peachtree St. N.E., Atlanta 3, Ga., Chairman.

Southwestern Surgical Congress, Hotel Utah, Salt Lake City, Sept. 21-23. Dr. C. R. Rountree, 1227 Classen St., Oklahoma City 3, Secretary.

Tennessee Valley Medical Assembly, Read House Hotel, Chattanooga, Sept. 28-29. Dr. William G. Stephenson, 612 Medical Arts Bldg., Chattanooga 3, President.

U. S. Chapter, International College of Surgeons, Waldorf-Astoria, New York, Sept. 13-17. Dr. Karl Meyer, 1516 Lake Shore Drive, Chicago 10, Secretary.

Utah State Medical Association, Salt Lake City, Sept. 10-12. Dr. Homer E. Smith, 42 South Fifth East St., Salt Lake City 2, Secretary.

Vermont State Medical Society, Equinox House, Manchester, Oct. 4-6. Dr. James P. Hammond, 542 Main St., Bennington, Secretary.

Washington State Medical Association, Olympic Hotel, Seattle, Sept. 13-16. Dr. Bruce Zimmerman, 338 White-Henry-Stuart Bldg., Seattle 1, Secretary.

Western Orthopedic Association, Sun Valley, Idaho, Oct. 5-8. Dr. Forrest L. Flashman, 1301 Spring St., Seattle 4, Secretary.

Wisconsin, State Medical Society of, Hotel Schroeder, Milwaukee, Oct. 5-7. Mr. Charles H. Crownhart, 704 East Gorham St., Madison 3, Secretary.

FOREIGN

Association of Surgeons of Great Britain and Ireland, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

Canadian Medical Association, Vancouver, B. C., Canada, June 18-22, 1954. Dr. T. C. Routley, 135 St. Clair Ave. W., Toronto 5, Ont., Canada, General Secretary.

Congress of International Anesthesia Research Society, Chateau Frontenac, Quebec, Canada, October 26-29. Dr. A. William Friend, 515 Nome Ave., Akron 20, Ohio, *Chairman, Program Committee.*

Congress of the International Association of Limnology, Cambridge and Windermere, England, Aug. 20-30. For information write: Professor G. C. Hutchinson, Osborn Zoological Laboratory, Yale University, New Haven, Conn., U. S. A.

Congress of the International League Against Rheumatism, Geneva, Switzerland and Aix-les-Bains, France, Aug. 23-29. For information write: Dr. W. Tegner, The London Hospital, London E.1, England.

Congress of the International Society of Angiology, Lisbon, Portugal, Sept. 18-20. Dr. Henry Haimovici, 105 East 90th St., New York 28, N. Y., U. S. A., Secretary.

Congress of the International Society of Surgery, Lisbon, Portugal, Sept. 14-20. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

Interim Meeting, Aero Medical Association, University of Brussels Medical School, Brussels, Belgium, Sept. 24-27. Dr. Andre Allard, Medical Director of SABENA, 145 Rue Royale, Brussels, Belgium, Secretary.

International Cancer Congress, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

International Conference on Thrombosis and Embolism, Basle, Switzerland, July 15-19, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

International Congress of the European Society of Haematology, Amsterdam, Holland, Sept. 8-12. Dr. M. C. Verloop, Maliesingle 15, Utrecht, Holland, Secretary.

International Congress on Genetics, Bellagio, Italy, August 24-31. Prof. C. Barigozzi, Instituto de Genetica, Universita de Milano, 10 via Celoria, Milan, Italy, Secretary.

International Congress on Group Psychotherapy, Toronto, Ont., Canada, Aug. 12-14, 1954. Dr. J. L. Moreno, Room 327, 101 Park Ave., New York 17, N. Y., U. S. A., Director of Organizing Committee.

International Congress of Hippocratic Medicine, Evian, France, Sept. 3-6. Prof. P. Delore, 13, rue Jarente, Lyon, France, Secretary-General.

International Congress of Hydroclimatism and Thalassotherapy, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni Venac 1, Belgrade, Yugoslavia, Secretary General.

International Congress of International College of Surgeons, Sao Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U.S.A., Secretary-General.

International Congress of Logopedics and Phoniatrics, Zurich, Switzerland, Sept. 1-5. Dr. Deso A. Weiss, 115 East 86th St., New York 28, N. Y., U. S. A., General Secretary.

International Congress on Mental Health, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

International Congress of Microbiology, Rome, Italy, Sept 6-12. For information write: Dr. V. Puntoni, Citta Universitaria, Rome, Italy.

International Congress on Obstetrics and Gynecology, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

International Congress of Paediatrics, Havana, Cuba, Oct. 12-17. Prof. *Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba, President.*

International Congress of Psychology, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

International Congress for Psychotherapy, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

International Congresses of Tropical Medicine and Malaria, Istanbul, Turkey, Aug. 28-Sept. 4. Professor Dr. Ihsan Sükrü Aksel, Tunel Meydam, Beyoglu, Istanbul, Turkey, General Secretary.

International Gerontological Congress, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

International Leprosy Congress, Madrid, Spain, Oct. 3-10. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

International Neurological Congress, Lisbon, Portugal, Sept. 7-12. Prof. Almeida Lima, Avenida do Brazil 53, Lisbon, Portugal, Secretary-General.

International Office of Documentation of Military Medicine, Rome, Italy, Oct. 14-18. Colonel Medecin Prof. A. Campana, Office of the Ministero della Difesa-Esercito, Rome, Italy, Secretary.

International Physiological Congress, Montreal, Canada, Aug. 31-Sept. 4. Dr. A. S. V. Burgen, Dept. of Physiology, McGill University, Montreal, Canada, Secretary.

International Society for the Study of Biological Rhythms, Basle, Switzerland, Sept. 18-19. For information write: Prof. Dr. F. Georgi, Neurologische Universitats-Poliklinik, Socinstrasse 55, Basle, Switzerland.

Journees Medicales, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geofroix, Colombes (Seine) France.

Latin American Congress of Obstetrics and Gynecology, *Buenos Aires,* Argentina, Oct. 26-31.

Latin American Congress of Otorhinolaryngology, Cáracas, Venezuela, Feb. 21-25, 1954. Dr. Victorino Marquez Reveron, Centro Medico, Caracas, Venezuela, Secretary-General.

Pacific Science Congress, Quezon City and Manila, Philippines, Nov. 16-28. Dr. Patrocinio Valenzuela, College of Pharmacy, University of the Philippines, Quezon City, Philippines, Secretary-General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, Mexico, D.F., Mexico, Feb. 28-March 4, 1954.

Pan American Medical Association, International Medical Cruise Congress, S. S. Nieuw Amsterdam, Jan. 6-22, 1954. Dr. Joseph J. Eller, 745 Fifth Avenue, New York 22, N. Y., U. S. A., Executive Director.

Pan American Medical Women's Alliance, Beekman Towers Hotel, New York, N. Y., Sept. 24-Oct. 1. Dr. Ina Marsh, 140 Linwood Ave., Buffalo, N. Y., U. S. A., Registration Chairman.

Persian Gulf Medical Society, Dhahran, Saudi Arabia, Dec. 7-8. Dr. N. J. Conan Jr., Department of Internal Medicine, Arabian American Oil Company, Dhahran, Saudi Arabia, Secretary.

Regional Meeting, American College of Physicians, San Juan, Puerto Rico, Oct. 15-17. Dr. R. Rodriquez-Molina, Veterans Administration Center, San Juan, Puerto Rico, Governor.

Sectional Meeting, American College of Surgeons, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

World Conference on Medical Education, British Medical Association House, Tavistock Square, W.C.1, London, England, Aug. 22-29. Secretariat: World Medical Association, 2 East 103d St., New York 29, N. Y., U. S. A.

World Congress of the World Confederation for Physical Therapy, London, England, Sept. 7-12. Miss M. J. Neilson, Chartered Society of Physiotherapy, Tavistock House, South, Tavistock Square, London, W.C.1, England, Secretary.

World Medical Association, The Hague, Netherlands, Aug. 31-Sept. 7. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., Secretary-General.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 22-24, 1954. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery.

Alaska:* Anchorage and Juneau, Sept. 7. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

Arizona:* *Examination.* Phoenix, Oct. 22-23. *Endorsement.* Phoenix, Oct. 24. Executive Secretary, Mr. Robert Carpenter, 401 Security Bldg., Phoenix.

Arkansas:* *Examination.* Little Rock, Nov. 5-6. Sec., Dr. Joe Verser, Harrisburg.

Colorado:* *Reciprocity.* Denver, Oct. 13. Final date for filing application is Sept. 14. *Examination.* Denver, Dec. 15-16. Final date for filing application is Nov. 14. Executive Secretary, Miss Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

Connecticut:* *Regular. Examination.* New Haven, Nov. 10-11. Reciprocity actions are taken continuously. Secretary to the Board, Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic.* Derby, Nov. 10-11. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

Delaware: Dover, Jan. 12-14, 1954. Sec., Dr. Joseph S. McDaniel, 229 South State St., Dover.

District of Columbia:* *Reciprocity.* Washington, Sept. 14. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

Florida:* *Examination.* Jacksonville, Nov. 22-24. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami 36.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Director of Medical Services, Guam Memorial Hospital, Agana.

Idaho: Boise, Jan. 11-13, 1954. Executive Secretary, Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Illinois: Chicago, Oct. 6-8. Superintendent of Registration, Mr. Fredric B. Selcke, *State House, Springfield.*

Iowa:* *Examination.* Des Moines, Dec. 7-9. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kansas: Topeka, Dec. 9-10. Sec., Dr. O. W. Davidson, 864 New Brotherhood Bldg., Kansas City.

Maine: Portland, Nov. 12-13. Sec., Dr. Adam P. Leighton, 192 State Street, Portland.

Maryland: *Examination.* Baltimore, Dec. 8-11. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore 1.

Michigan:* *Examination.* Lansing, Oct. 14-16. Sec., Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing 8.

Minnesota:* Minneapolis, Oct. 20-22. Sec., Dr. E. M. Jones, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: *Reciprocity.* Jackson, December. Assistant Secretary, Dr. R. Whitfield, Old Capitol, Jackson 113.

Montana: Helena, Oct 5. Sec., Dr. S. A. Cooney, 214 Power Block, Helena.

Nebraska:* *Examination.* Omaha, June 1954. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada:* Reno, Oct. 6. Sec., Dr. George H. Ross, 112 Curry St., Carson City.

New Hampshire: Concord, Sept. 9. Sec., Dr. John S. Wheeler, 107 State House, Concord.

New Jersey: *Examination.* Trenton, Oct. 20-23. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

New Mexico:* Oct. 12-13, Santa Fe. Sec., R. C. Derbyshire, 227 E. Palace Ave., Sante Fe.

New York: *Examination.* New York, Syracuse, Buffalo and Albany, Oct. 6-9. Sec., Dr. Stiles D. Ezell, 23 South Pearl St., Albany.

North Carolina: *Reciprocity.* Asheville, Oct. 12. Sec., Dr. Joseph J. Combs, 716 Professional Bldg., Raleigh.

North Dakota: *Examination.* Grand Forks, Jan. 6-9, 1954. *Reciprocity.* Grand Forks, Jan. 9. Sec., Dr. C. J. Glaspel, Grafton.

Ohio: *Examination.* Columbus, December. *Reciprocity.* Columbus, Oct. 6. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

Oregon:* *Reciprocity.* Portland, Oct. 16-17. Sec., Dr. Wilmot C. Foster, 609 Failing Bldg., Portland 4.

Pennsylvania: *Examination.* Philadelphia, January 1954. Acting Secretary, Mrs. Margaret G. Steiner, Box 911, Harrisburg.

Rhode Island:* *Examination.* Providence, Oct. 1-2. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Reciprocity.* Columbia, Sept. 21. Sec., Mr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota:* *Examination.* Sioux Falls, Jan. 19-20, 1954. Reciprocity can be obtained at any time between meetings of board. Executive Secretary, Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Tennessee:* *Examination.* Memphis, Sept. 30-Oct. 1. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

Texas: Fort Worth, Nov. 12-14. Reciprocity applicants must be completed *30 days prior to the meeting date.* Sec., Dr. M. H. Crabb, *1714 Medical* Arts Bldg., Fort Worth 2.

West Virginia: Charleston, Oct. 19. Sec., Dr. N. H. Dyer, State Office Bldg., Charleston 5.

Wisconsin:* *Reciprocity.* Madison, October. *Examination and Reciprocity.* Madison, Jan. 12-14, 1954. Sec., Dr. A. G. Koehler, 46 Washington Blvd., Oshkosh.

Wyoming: Cheyenne, Oct. 5. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

Arizona: *Examination.* Tucson, Sept. 15. Sec., Mr. Herbert D. Rhodes, University of Arizona, Tucson.

Arkansas: *Examination.* Little Rock, Oct. 6-7. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock.

Colorado: *Examination.* Denver, Sept. 9-10. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 18.

Connecticut: New Haven, Oct. 10. Address: State Board of Healing Arts, 52 Whitney Ave., New Haven 10.

District of Columbia: *Examination.* Washington, Oct. 19-20. Sec., Dr Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

Florida: *Examination.* Gainesville, Nov. 7. Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

Minnesota: *Examination.* Minneapolis, Oct. 6-7. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis 14.

Nebraska: *Examination.* Omaha, Oct. 6-7. Director, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada: *Examination.* Reno, Oct. 6. Sec., Dr. Donald G. Cooney, Box 9005, University Station, Reno.

New Mexico: *Examination.* Santa Fe, Oct. 18. Sec., Mrs. Marguerite Cantrell, Box 1592, Santa Fe.

Oklahoma: *Examination.* Oklahoma City, August 28-29. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: Portland, Aug. 29. Final date for filing application is Aug. 12. Portland, Dec. 5. Sec., Dr. Charles D. Byrne, University of Oregon, Eugene.

South Dakota: *Examination.* Vermillion, Dec. 4-5. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Tennessee: *Examination.* Memphis, Sept. 23-24. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

Texas: *Examination.* Dallas and Galveston, October. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

Wisconsin: *Examination.* Madison, Sept. 19. Final date for filing application is Sept. 11. Milwaukee, Dec. 5. Final date for filing application is Nov. 27. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

---

* Basic Science Certificate required.

DEATHS

Gilbert, Newell Clark ⊕ Chicago; born in Clinton, Ill., Dec. 5, 1880; Northwestern University Medical School, Chicago, 1907; professor of medicine emeritus at his alma mater, where he was past chairman of the department of internal medicine; served during World War I; later a lieutenant colonel in the medical officers reserve corps; specialist certified by the American Board of Internal Medicine; past president of the Chicago Heart Association; member of the Central Society for Clinical Research, Association of American Physicians, Chicago Society of Internal Medicine, Institute of Medicine of Chicago, and the American Society for Clinical Investigations; fellow of the American College of Physicians; vice-chairman, 1935-1936 and chairman 1936-1937, Section on Pharmacology and Therapeutics, American Medical Association, where he was chairman of the Section on Practice of Medicine, 1938-1939; senior attending physician, St. Luke's Hospital; formerly chief editor of the *Archives of Internal Medicine*; died in St. Joseph's Hospital in Milwaukee Aug. 1, aged 72, of bile peritonitis following an operation for acute cholecystitis and gallstones.

Crawford, Robert Hope ⊕ Rutherfordton, N. C.; born in Rock Hill, S. C., in 1890; Johns Hopkins University School of Medicine, Baltimore, 1914; member of the founders group of the American Board of Surgery; member of the Southern Surgical Association and the Southeastern Surgical Congress; fellow of the American College of Surgeons; served overseas during World War I, and in 1919 received from King Alexander of Greece the Medal of Military Merit, awarded him for distinguished service in Greece with the American Red Cross in helping to stamp out a typhus epidemic in Macedonia; medical director of the Rutherford Hospital; died April 15, aged 63, of squamous cell carcinoma of the chest wall.

Calcote, Royal Jackson ⊕ Little Rock, Ark.; born in Ruston, La., Sept. 11, 1893; University of Arkansas School of Medicine, Little Rock, 1918; clinical professor of surgery (ophthalmology) at his alma mater; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; formerly treasurer of the Arkansas Medical Society, and secretary of the Pulaski County Society; served during World Wars I and II; consultant, Arkansas School for the Blind; affiliated with St. Vincent Infirmary and Arkansas Baptist and Missouri Pacific hospitals; died in Hot Springs, Ark., June 28, aged 59, of cerebral hemorrhage.

Ennett, Nathaniel Thomas ⊕ Beaufort, N. C.; born Jan. 5, 1877; Medical College of Virginia, Richmond, 1907; formerly on the faculty of his alma mater; specialist certified by the American Board of Preventive Medicine and Public Health; health officer of Carteret County; for many years health officer of Pitt County; formerly health officer of Surry County; past president of the North Carolina Public Health Association and the Second District Medical Society; at one time practiced in Richmond, Va., where he was medical director for the city board of education from 1911 to 1932 except for one year; died in Morehead City (N. C.) Hospital June 23, aged 76, of cerebral hemorrhage.

Echtman, Joseph ⊕ New York City; born in Russia, Jan. 15, 1886; New York Homeopathic Medical College and Flower Hospital, 1919; served on the faculty of New York Medical College, Flower and Fifth Avenue Hospitals; formerly affiliated with Mount Sinai Hospital and the cardiac clinic of Beth Israel Hospital; chief of physiotherapy clinic, Stuyvesant Polyclinic, from 1936 to 1942 and later director of postgraduate courses in physical medicine in this institution; for many years chief of physical medicine at Beth David Hospital; author of "The Cure of Rheumatoid Arthritis and Related Conditions by Physical Medicine," published in 1951; died June 27, aged 67, of carcinoma.

Braunstein, William Peter ⊕ Weehawken, N. J.; born in Union, N. J., Jan. 21, 1900; Columbia University College of Physicians and Surgeons, New York, 1923; specialist certified by the American Board of Pathology; member of the College of American Pathologists and the American Society of Clinical Pathologists; for many years assistant medical examiner in Hudson County; attending pathologist at North Hudson Hospital in Weehawken and president of the staff of St. Mary's Hospital, in Hoboken, where he was director of pathology; died in Lenox Hill Hospital, New York, June 23, aged 53, of carcinoma of the lung.

Aborn, William Henry ⊕ Hawley, Minn.; McGill University Faculty of Medicine, Montreal, Canada, 1887; died in Lake Park June 13, aged 95, of carcinoma of the bladder.

Anderson, Marion Ellsworth, Clinton, Iowa; Northwestern University Medical School, Chicago, 1911; served during World War I; died in the Jane Lamb Hospital June 15, aged 70, of carcinoma of the urinary bladder.

Bartolucci, Raymond John ⊕ Albuquerque, N. Mex.; Chicago Medical School, 1935; member of the American Academy of General Practice; died July 6, aged 45.

Bloom, Harold Abel ⊕ New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1918; died April 24, aged 59, of coronary occlusion.

Bowen, Frederick Stuber ⊕ Woodburn, Iowa; Rush Medical College, Chicago, 1901; served during World War I; died in the Veterans Administration Hospital, Des Moines, June 3, aged 78, of arteriosclerotic heart disease.

Boyd, Leon Morelle ⊕ Alexandria, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1908; died in Our Lady of Mercy Hospital May 29, aged 69, of a heart attack.

Briggs, Carl F. ⊕ Sullivan, Ind.; Rush Medical College, Chicago, 1902; served as secretary and president of the Sullivan County Medical Society; surgeon for the Chicago and Eastern Illinois Railroad; died June 20, aged 72, of coronary disease.

Briggs, Robert Truman, Hempstead, N. Y.; Long Island College Hospital, Brooklyn, 1898; served during World War I; died June 28, aged 79, of a heart attack.

Brown, Joseph C., Lookout, W. Va.; Baltimore Medical College, 1895; served as a member of the staffs of Weston (W. Va.) State Hospital and the Spencer (W. Va.) State Hospital; died July 13, aged 81, of arteriosclerosis.

Bullen, Victor Emmanuel ⊕ Paterson, N. J.; New York University Medical College, New York, 1896; died in Paramus, June 29, aged 84.

Burst, Emil Andrew ⊕ St. Louis; St. Louis University School of Medicine, 1909; served during World War I; on the staff of the Lutheran Hospital, where he died June 20, aged 68, of ruptured abdominal aortic aneurysm.

Butterfield, Edwin Jay ⊕ Tucson, Ariz.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; member of the Iowa State Medical Society; died May 13, aged 73, of carcinoma of the stomach.

Chasatzky, Isaac Samuel ⊕ New York City; University of Kharkov Faculty of Medicine, Russia, 1913; affiliated with Mount Sinai Hospital; died recently, aged 64, of tuberculosis of the kidneys.

Clark, Ernest Walton Jr. ⊕ Haddon Heights, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1922; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; served on the staffs of Cooper Hospital in Camden and Wills Hospital in Philadelphia; died in Friends Hospital, Philadelphia, April 24, aged 56.

⊕ Indicates Member of the American Medical Association.

Cohen, Franklin Harry, Norfolk, Va.; University of Virginia Department of Medicine, Charlottesville, 1934; member of the American Academy of General Practice; served during World War II; affiliated with De Paul Hospital and the Norfolk General Hospital, where he died June 12, aged 43, of cerebral hemorrhage and hypertension.

Cooper, Fay Maxey ⊕ Oklahoma City; University of Arkansas School of Medicine, Little Rock, 1925; clinical professor of ophthalmology at University of Oklahoma School of Medicine; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; past president of the Oklahoma City Clinical Society; affiliated with St. Anthony, University, and Wesley hospitals; died June 16, aged 53, of myocardial infarction.

Cowart, Newit Walter, Wiggins, Miss.; Memphis (Tenn.) Hospital Medical College, 1908; died May 19, aged 74.

Crecelius, Harry Alfred ⊕ Plains, Mont.; Beaumont Hospital Medical College, St. Louis, 1897; served as county physician and health officer; died June 2, aged 77.

Crosbie, George Torance, Belle Vernon, Pa.; Starling Medical College, Columbus, 1898; on the staff of the Charleroi Monessen Hospital in Charleroi, where he died June 21, aged 77, of carcinoma of the bladder.

Crosland, Edward Samuel ⊕ Royersford, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1922; died in Memorial Hospital, Pottstown, April 21, aged 56, of acute cardiac dilatation.

Dana, Lawrence Wellington ⊕ Kane, Pa.; Jefferson Medical College of Philadelphia, 1903; died in Hamot Hospital, Erie, April 24, aged 73, of cardiac failure.

Denyes, Gerald Foster ⊕ Toledo, Ohio; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1916; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; served with the Canadian Army during World War I; formerly affiliated with Toledo, Mercy, and Flower hospitals; died in Good Samaritan Hospital in West Palm Beach, Fla., June 22, aged 57, of coronary thrombosis.

DeWitt, Charles Cornelius, Louisville, Ky.; University of Louisville Medical Department, 1917; served during World War I; died in Norton Memorial Infirmary April 19, aged 76, of bleeding duodenal ulcer, hemiplegia, and cerebral thrombosis.

Duckwall, Francis A., Dayton, Ohio; Medical College of Ohio, Cincinnati, 1877; died June 24, aged 101, of cerebral hemorrhage.

Dudley, Alberta Pasch Webb ⊕ Oklahoma City, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1942; instructor in medicine at her alma mater; assistant medical director of the Oklahoma Defense Blood Center; died in St. Anthony's Hospital June 1, aged 53, of carcinoma.

Duncan, Henry, Marietta, Minn.; Rush Medical College, Chicago, 1900; died May 22, aged 85.

Eagan, Edward Francis ⊕ Lynn, Mass.; Yale University School of Medicine, New Haven, Conn., 1930; certified by the National Board of Medical Examiners; specialist certified by the American Board of Otolaryngology; served during World War II; twice elected to the school committee of Lynn; affiliated with Lynn and Union hospitals in Lynn, and the Carney Hospital in Boston; died in Cape Cod Hospital in Hyannis June 13, aged 47, of coronary occlusion and myocardial infarction.

Edson, Elmer Rockwood ⊕ Portland, Ore.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; served overseas as a medical officer for the Canadian and U. S. Army during World War I; associated with the Veterans Administration Hospital and Veterans Administration regional services from 1923 to 1948; died in Lyons, N. Y., May 31, aged 80, of coronary thrombosis.

Ertzman, Richard Leonard ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1903; served during World War I; died June 18, aged 73, of coronary occlusion.

Farquhar, David Clifford ⊕ Monessen, Pa.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; served during World War I; affiliated with Charleroi-Monessen Hospital in Charleroi; died July 2, aged 71, of a heart attack.

Feman, Jacob George ⊕ Keansburg, N. J.; University of Maryland School of Medicine, Baltimore, 1930; on the staffs of the Monmouth Memorial Hospital in Long Branch and the Riverview Hospital in Red Bank; died in Memorial Hospital, New York City, June 9, aged 48, of carcinoma of the colon.

Levy, Walter Edmond Jr., New Orleans; born in New Orleans April 1, 1922; Tulane University of Louisiana School of Medicine, New Orleans, 1945; interned at Touro Infirmary; served a residency in obstetrics and gynecology at Charity Hospital; served during World War II; clinical instructor in obstetrics and gynecology at Louisiana State University School of Medicine; affiliated with Touro Infirmary; consulting obstetrician at Flint Goodridge Hospital; on the courtesy staff of the Sara Mayo Hospital; died June 27, aged 31.

Marthens, Jesse Grant, Dayton, Ohio; Syracuse University College of Medicine, 1907; served during World War I; died June 18, aged 69.

Miller, James Wesley ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1923; affiliated with Thomas M. Fitzgerald-Mercy Hospital in Darby and the Presbyterian, St. Vincent's, and St. Agnes hospitals; died in Bryn Mawr (Pa.) Hospital June 24, aged 59, of coronary thrombosis with acute myocardial infarction.

Moore, Harold H. ⊕ Ottumwa, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; fellow of the American College of Surgeons; affiliated with Ottumwa Hospital and St. Joseph's Hospital, where he died April 20, aged 63, of pulmonary thrombosis, myocardial infarction, and arteriosclerotic heart disease.

Murrow, Joseph S, ⊕ Apalachicola, Fla.; University of Georgia Medical Department, Augusta, 1899; formerly associated with the U. S. Public Health Service; died in the Franklin County Hospital May 28, aged 80, of hypostatic pneumonia.

Nelson, Elford John ⊕ Pomona, Calif.; University of Toronto Faculty of Medicine, Toronto, Canada, 1920; died suddenly, June 10, aged 56, of acute coronary thrombosis, chronic arthritis, and arteriosclerosis.

O'Keeffe, James Vincent ⊕ Lynn, Mass.; Harvard Medical School, Boston, 1909; affiliated with Lynn Hospital; died June 12, aged 70, of coronary thrombosis.

Payne, John Edward Jr., Reidsville, N. C.; Meharry Medical College, Nashville, Tenn., 1942; interned at City Hospital, Winston-Salem; served during World War II; died April 10, aged 37, of a heart attack.

Pentecost, Milton Irving ⊕ Freeport, Maine; Jefferson Medical College of Philadelphia, 1908; member of the Medical Society of the State of Pennsylvania; served overseas during World War I; for many years on the staff of the Scranton (Pa.) State Hospital; died May 23, aged 70, of a heart attack.

Phillips, Clyde Lincoln ⊕ Hilo, Hawaii; Northwestern University Medical School, Chicago, 1929; died May 26, aged 53.

Plath, John Henry, Wyckoff, N. J.; University and Bellevue Hospital Medical College, New York, 1899; died June 21, aged 76, of encephalopathy due to cerebral arteriosclerosis.

Powell, John Franklin, Greentown, Ind.; Medical College of Indiana, Indianapolis, 1897; died June 5, aged 78, of heart disease.

Pracht, Henry Walters ⊕ Miami Beach, Fla.; University of Pittsburgh School of Medicine, 1928; died May 13, aged 49, of myocardial infarction and coronary occlusion.

Snow, Glenadine Calkins, Ypsilanti, Mich.; University of Michigan Medical School, Ann Arbor, 1921; died in St. Joseph Mercy Hospital, Ann Arbor, May 10, aged 64, of coronary thrombosis and arteriosclerosis.

GOVERNMENT SERVICES

NAVY

Sea Duty for WAVES.—The Navy announced July 29 that it will call for volunteers from the enlisted women of the hospital corps to fill 63 billets on ships of the Military Sea Transportation Service. This is the first time that military billets aboard ships have been opened to enlisted WAVES. Twenty-four Navy nurses will thus be replaced by the enlisted hospital corps WAVES, and the nurses will then be available for assignment to Navy hospitals ashore. A minimum of two enlisted women will be assigned to each ship, and they will be assigned only to ships that have a Navy nurse aboard. The tour of duty aboard these ships is 21 months. Of the billets available, 28 are in the Atlantic and 35 in the Pacific.

Motor Vehicle Accidents.—The Navy's Bureau of Medicine and Surgery has completed tabulation of motor vehicle accidents in which Navy and Marine Corps personnel were involved during the year 1951. The 7,940 new admissions to the Navy's sick list as a result of motor vehicle accidents accounted for one of every four new admissions for accidental injuries during the year. Each of these new admissions accumulated an average of 42.2 days on the sick list and a total manpower loss of 335,279 sick days.

These accidents caused 603 deaths during the year, of members of the Navy and Marine Corps. This was the second highest death rate due to motor vehicle accidents in recorded naval history. Almost three-fourths of the total admissions resulted from accidents involving passenger automobiles. The statistics reveal that the highest rate occurred among personnel under 30 years of age.

PUBLIC HEALTH SERVICE

Evaluation of Gamma Globulin.—A nation-wide cooperative research effort to evaluate the use of gamma globulin against poliomyelitis has been sponsored by the Public Health Service in collaboration with the Association of State and Territorial Health Officers, the American Physical Therapy Association, and the D. T. Watson School of Physiatrics, which is affiliated with the University of Pittsburgh School of Medicine. An advisory committee comprised of 17 leading poliomyelitis authorities planned the investigation and will review its progress. The service's Communicable Disease Center at Atlanta, Ga., will coordinate the program.

Gamma globulin is being made available by the American Red Cross from the blood it collects and by the National Foundation for Infantile Paralysis from other, purchased stocks. The national supply of gamma globulin is being distributed by the Public Health Service, under a policy set by the Office of Defense Mobilization, to the state health officers, who are then responsible for its use in their own areas.

In Atlanta, a temporary organization, the National Gamma Globulin Evaluation Center, has been established within the Communicable Disease Center. Dr. Abraham M. Lilienfeld, assistant professor of epidemiology in the Johns Hopkins School of Hygiene and Public Health and a consultant to the Communicable Disease Center, is serving as director of the Evaluation Center. The National Gamma Globulin Evaluation Center neither distributes nor administers gamma globulin but is concerned solely with evaluation of its effects. It will be impossible to study all the expected multiple case households in all states, but an attempt will be made to survey as large a proportion as possible. Each patient in the study will be examined from 50 to 70 days after the beginning of illness by a trained physical therapist. These services are being arranged by the American Physical Therapy Association, aided by a grant from the National Foundation for Infantile Paralysis.

Venereal Disease Course.—The 21st venereal disease postgraduate course will be held at Chapel Hill, North Carolina, from Sept. 28 through Oct. 2 under the cosponsorship of the U. S. Public Health Service and the North Carolina University Schools of Medicine and of Public Health. For many years the courses in venereal disease were held twice annually at the U. S. Public Health Service Medical Center, Hot Springs National Park, Hot Springs, Ark., until the center was closed last June. The postgraduate course in venereal disease is open to all physicians. Applications for enrollment in the course starting on Sept. 28 should be sent to Dr. Harold Magnuson, director, Venereal Disease Experimental Laboratory, Box 687, Chapel Hill, N. C.

Laboratory Courses.—Agenda for two training courses, in fluoride analysis and the membrane filter in bacteriological analysis of water, and a seminar on individual household sewage disposal systems have been announced by the Environmental Health Center, Public Health Service. The course in fluoride analysis, to be given Sept. 17-18, includes discussion of the public health aspects of the fluoridation program, choice of compound and feeding equipment, and problems in fluoride determinations. Laboratory work will show visual and instrumental methods of determining fluoride in the presence of common interfering materials. The household sewage disposal system seminar, which will be given Sept. 23-25, will cover the role of individual household sewage systems in the field of sewage disposal, the development of household sewage disposal systems, and various types of sewage disposal systems. The second training course, on the membrane filter in bacteriological analysis of water, will be held Oct. 13-16. In addition to discussions of the physical and chemical properties of the membrane filter and filtration technique and procedures, laboratory work will be given on filtration of samples and incubation of membranes on enrichment medium. Letters of application for these courses should be sent to the Officer in Charge, Environmental Health Center, Public Health Service, 1014 Broadway, Cincinnati 2, Ohio, or to the Public Health Service Regional Offices.

VETERANS ADMINISTRATION

GI Insurance.—Some 4 million veterans with GI term insurance in force will no longer have to apply to the Veterans Administration for renewal of the policies for another five year term before their old policies expire. The VA will do this for them automatically, if their old policies are not lapsed at the expiration of the term period. This means the policy must be in force at the end of the term period, with the final premium having been paid on time. The new procedure went into effect July 23, 1953, when the President signed Public Law 148. The new law covers only those term policies that expire on or after July 23, 1953.

Personal.—Harvey V. Higley became Administrator of Veterans Affairs on July 22, 1953. He left the position of chairman of the board of the Ansul Chemical Company, Marinette, Wis., with which he has been associated since 1919.

FOREIGN LETTERS

DENMARK

Danish BCG Studies.—*Ugeskrift for Laeger* for June 25, 1953, contains 9 original articles and an editorial on BCG. The first of these articles is by Dr. Tage V. Hyge whose report several years ago of an outbreak of tuberculosis in a Danish school for girls between the ages of 12 and 18 has been held as a model of research, since even the most particular statistician could not find fault with the evidence in favor of BCG. The girls in this school were classified in three groups: (1) tuberculin-negative and not vaccinated with BCG, (2) tuberculin-negative and vaccinated with BCG, and (3) tuberculin-positive from the outset and not vaccinated with BCG. The tuberculosis morbidity was many times greater in the first than in the second group. The figures for all three groups are brought up-to-date by Hyge in the present article. Another original article, by Dr. E. Groth-Petersen, describes the inaccuracy with which laymen are apt to answer the question: "Have you been vaccinated with BCG?" Among 31,000 persons examined during a mass BCG vaccination campaign, the statements could be checked by records at a tuberculosis dispensary. It was found that 4.1% of those who said they had been vaccinated with BCG had in reality not been so vaccinated, while 9.1% who denied previous vaccination had in fact been vaccinated with BCG. Groth-Petersen suggests that these findings should be borne in mind when doubts arise over the efficacy of BCG in persons in whom tuberculosis develops after they think they have been vaccinated with BCG.

Several of the other original articles are concerned with complications of BCG vaccination. Evidently subcutaneous local abscesses often reflect defective vaccination technique, although even well-trained and careful vaccinators occasionally find that an intracutaneous injection of BCG is followed by a local abscess. During the last 3 years alone some 220,000 Danish children under school age have been vaccinated with BCG; a number three times greater than the total for the preceding 15 years. It is, therefore, not surprising, with this expansion of the campaign for BCG vaccination, that there would be several mishaps that alarm the public. It is pointed out in the editorial that, while the deaths from tuberculosis in Denmark have fallen to between only 400 and 500 yearly, some 2,500 new cases of tuberculosis are still being found yearly. There are also some 15,000 tuberculosis patients alive. In other words, though the tuberculosis mortality is low, the tuberculosis morbidity remains comparatively high, indicating the necessity for sustained BCG vaccination of the whole population.

Hypospadias.—Dr. Hans R. Sørensen's study of hypospadias was recently published as a doctorate thesis by Ejnar Munksgaard of Copenhagen. Hypospadias is classified in this study according to whether it was near the gland, penile-penoscrotal, or perineoscrotal. About three-quarters of the cases were in the first category, about one-eighth in the second, and about one-eighth in the third. Ninety cases of hypospadias were found among 27,613 male infants about 10 days old. Testicle retention was more frequent among the hypospadias patients than among other boys. The marriage rate of 77 patients over the age of 20 was the same as that of normal controls, and there was no essential difference between the two with regard to sex activities provided certain disabilities had been removed by operative treatment. A comparison with normal controls suggested that the fertility of 47 married patients was unimpaired in those with abnormality near the gland. This may also have been true for other cases, but for the more serious cases fertility was reduced but not extinguished. Sørensen believes that hypospadias is hereditary. Scrutiny of 90 maternity records and data obtained from 34 mothers failed to indicate fetal infections, malnutrition, somatic or psychic trauma, intoxications, or hemorrhages during pregnancy as factors of etiological importance. He finds no reason for advocating restrictive marriage measures on the hereditary factor in hypospadias or for recommending birth control for this reason.

At a recent meeting of the Danish Surgical Society, Dr. P. Fogh-Andersen calculated that every year in Denmark there are some 30 new patients with hypospadias requiring operation. He gave an account of 34 patients operated on at the surgical department C of the Rigshospital in Copenhagen according to the Denis-Browne technique. This plastic operation on the urethra has been shown on a follow-up examination more than a year later to have been eminently successful and without any tendency to stricture of the urethra. Indeed, this technique should henceforth be the standard operation for all the forms of hypospadias including the most serious. Another speaker on this occasion referred to 70 adult patients, 47 of whom had married. Their fertility was actually greater than that of controls without hypospadias, and, as there was no difference in fertility of the patients who had or had not been operated on, there is no need to operate on minor cases to promote fertility.

Future of Intended Suicides.—Since October, 1949, cases of poisoning by narcotics in Copenhagen have been centralized in the psychiatric department of the Bispebjerg Hospital. In 1951, this hospital dealt with 846 such patients out of a total of 1,276 registered for greater Copenhagen. In this year, the mortality for these cases in greater Copenhagen was 1.6%, whereas for the whole of Denmark it was about 25% in 1945. To answer the question, "What is the future of the patients recovering in the hospital from poisoning by narcotics?" Dr. Harald Hove has undertaken a follow-up study of the first 500 patients whose attempts to commit suicide were thwarted in the Bispebjerg Hospital and whose fate two to three years later was investigated. Only six of these patients could not be traced. Of the 30 who had died since discharge from hospital, 6 had died a natural death (tuberculosis, heart disease, and other causes). The remaining 24 had been successful in committing suicide. Most of the 500 had attempted to commit suicide under emotional stress, in association with drunkenness in 74. Only 21 of the 500 could be classed as insane, but there were as many as 29 who suffered from constitutional psychopathia, 9 from "intellectual inferiority," 48 from chronic alcoholism, 11 from narcomania, 12 from epilepsy, and 3 from organic encephalopathy. In several cases, more than one of the above conditions occurred in the same patient. Altogether about 25% of the 500 were handicapped by conditions that hamper adaptation to the requirements of life in a modern community. It was in this group that most of the cases of recurrent attempts to commit suicide were found.

Among the 72 patients who were readmitted to the hospital for attempted suicide or who were found dead as the result of suicide, there were only 2 who attempted to commit suicide again within a month of the first attempt. All the successful suicides occurred over the observation period of two to three years. Among the patients readmitted to the hospital for attempted suicide during this observation period, there were several who were readmitted several times (three to five times). Dr. Hove concludes that probably not more than 20% of the 500 patients attempted suicide again during the period under review and that the staff of his hospital can be cheered by the reflection that most of the patients over whom they toil may be expected to recover not only momentarily but for a long time to come. Dr. Hove's findings are published in full in *Ugeskrift for Laeger* for April 23, 1953.

The items in these letters are contributed by regular correspondents in the various foreign countries.

LONDON

Vegetable Juices.—In a recent issue of the *Monthly Bulletin of the Ministry of Health and the Public Health Laboratory Service* (**12**:78 [April] 1953) H. E. Magee published an analysis of some of the better known constituents of vegetable juices. These are summarized in the following table, in which the figures in parentheses represent the content of the vegetable (as opposed to the juice):

Juice	Total Sugars (as Glucose) Grams per 100 Ml. (Gm.)	Iron, Mg. per 100 Ml. (Gm.)	Calcium, Mg. per 100 Ml. (Gm.)	Vitamin B_1, Mg. per 100 Ml. (Gm.)
Broccoli leaves.....	3.00 (0.4)	0.60 (1.52)	18.70 (160)	15.0
Cabbage..........	4.17 (8.3)	1.02 (1.0)	16.90 (65)	75.0 (75)
Carrots...........	7.11 (5.4)	0.30 (0.6)	0.49 (48)	30.0 (60)
Celery.............	2.08 (1.2)	0.43 (0.6)	0.62 (52)	15.0 (30)
Kale...............	3.71	1.60 (2.5)	11.60 (200)	15.0 (120)
Melon.............	4.33	0.42	0.40	30.0
Parsley...........	0.44 (8.8)	1.12 (8.0)	6.30 (325)	30.0 (120)
Spinach...........	1.85 (1.2)	1.02 (4.0)	0.75 (595)	Nil (100)
Tomato...........	3.06 (2.8)	0.08 (0.4)	4.05 (13)	15.0 (60)
Watercress........	*0.20 (0.6)*	*2.12 (1.6)*	*2.90 (222)*	*30.0 (120)*

In the case of vitamin C, only kale juice was found to have any appreciable amount, 46 mg. per 100 ml.; this was probably due to the absence of oxidases or that of antioxidases. Investigations showed that the vitamin C in many vegetable juices was quite unstable. The reaction of all the juices examined was very close to neutrality, and it was found that they practically all had a high buffering capacity. When milk, which is well known for its buffering capacity, was used as the standard, spinach juice was found to surpass it, while the juices of cabbage, kale, and parsley were not far behind. The comment is made that "the high buffering capacity of the juices suggests that they might be valuable in the treatment of hyperchlorhydria." It is noted that the reaction of the fresh juices, and their buffering capacities, would favor bacterial growth at suitable temperatures; "perhaps the most to be feared is B. botulinus." Juices can be preserved in three ways: "(1) by ensuring scrupulous cleanliness of the vegetables and then keeping the juice at refrigerator temperature from the time of expression until consumption, (2) by pressure sterilization, and (3) by lowering the pH to 4.2 or less, followed by low temperature pasteurisation." Attention is also drawn to the significant amounts of minerals in vegetable juices and to recent work indicating that some green vegetables, and their juices, contain appreciable amounts of some of the essential amino acids.

On the relative merits of juices as compared with whole vegetables, the view is expressed that "for the healthy person then, vegetable juices can hardly be regarded as a substitute for whole vegetables and their place in the normal diet would seem to be merely as an appetiser or cocktail." On their therapeutic value the position is summed up as follows: "Claims are made that various juices in amounts up to 500 ml. daily are beneficial in hyper-tension, certain types of cardiovascular and kidney disease and in obesity, but it is not clear to what extent other elements in the therapy employed, e. g., low calorie diets and low sodium chloride, were contributory factors. Good effects have also been ascribed to the juices in rheumatic, degenerative and toxic states, and they are probably attributable to their all-around protective action. The evidence indicates that good results are to be expected fr large amounts of juices (up to 1 litre daily) in the treatm of peptic ulceration. But they have also given good result the treatment of diarrhoea, colitis and toxaemia of ga intestinal origin."

Antibiotic Production in the United Kingdom.—It has been reported that the output of penicillin in this country April constituted an all-time record: the average weekly ou was 2,136,600 megaunits. This compares with 1,296,000 m units in 1952 and 723,700 megaunits in 1951. For the four months of the year exports of penicillin salts and pre tions amounted to 17,500,000 megaunits, compared with over 12 million megaunits in the same period last year. February, 1953, the price was further cut by 3s.9d. to 21s. per 5 megaunits. In reporting these figures, the *Fina* *Times* also announces an interesting development in the antibiotic field, whereby a British company "has made an arrangement with an American company to make the crude broth from which aureomycin is extracted," and it is expected that a substantial output will be reached by September. According to the same course, "this will make the United Kingdom independent of the imported crude which is now coming from the United States. . . . The implications . . . are many. It could mean that aureomycin will be available to doctors on the same basis as penicillin when it becomes wholly made in England. At present these drugs [i. e., aureomycin and oxytetracycline] can only be used by hospitals and doctors in special cases."

Ambulance Service Costs.—Figures just issued for the year ended March 31, 1952, show that the Ambulance Service cost the country £8,608,828 during this year. An analysis of this figure shows that 56.4% was spent on the operational staff, 20.3% on the fueling and maintenance of vehicles, 6% on provision of vehicles, 2.8% on maintenance of such things as buildings and furniture, 1.2% on provision of land and buildings, and 13.3% on other expenditures, including administrative expenses. During the year the service conveyed 11 million patients, and the mileage covered was 92 million miles. This compares with 9 million patients and 89 million miles in the previous year. The average cost per patient fell from 15s.6d. to 15s.2d., and the average number of miles run per patient fell from 9 to 8.3. The number of ambulances and cars in use was 4,411. In addition a large number of private cars were available on a voluntary basis through the Hospital Car Service, and 15,000 patients traveled by rail under arrangements made by local health authorities.

The Nation's Drug Bill.—The serious view that the government takes of the rising drug bill is well demonstrated by the fact that Mr. Lan Macleod, the Minister of Health, attended in person the Annual Conference of Local Committees of the British Medical Association in order to appeal for the support of the medical profession in his efforts to reduce this unruly item without disciplinary action. He described the rising cost of the drug bill as one of the gravest and most urgent problems that confronted the National Health Service. He said that the exchequer could not go on paying an annual bill of something like 40 million pounds for drugs prescribed by general practitioners (when the whole range of dressings and appliances prescribed is considered, the figure is nearer 60 million pounds) unless the drugs were all essential for the proper treatment of patients.

He advanced two major reasons for the increase in the drug bill from £31,500,000 in 1949-1950 to an estimated figure of £46,500,000 in 1953-1954: (1) an increase in the total number of prescriptions dispensed, over 200 million a year (*the latest figures just announced are those for August,* 1952: 12,953,542 at a total cost of £2,709,428, or an average of 50.2d. per prescription), and (2) an increase in the average cost of prescriptions from 2s.9d. in 1948-1949 to an estimated 4s.3d. in 1953-1954, due to (*a*) the introduction of new valuable but c [illegible] drugs, (*b*) [illegible] rise in the ingredient prices until this [illegible] though some [illegible] gs, e. g., some of the antibiotics, w [illegible] derably ch [illegible] and (c) the prescribing of an increa [illegible] ion of [illegible] ry preparations (in 1952, proprieta [illegible] total number of prescriptions, [illegible] cost, and 44.5% of their total [illegible]

He quot [illegible] nd prescribing
propri [illegible] rd), prepara-
was [illegible] ary
standard
in
for
of

around £50,000 could be saved if comparable standard preparations were used instead of proprietary preparations in the treatment of peptic ulcer and heart disease.

The minister then proceeded to indicate that practical ways in which practitioners could assist him in reducing this expenditure on drugs. 1. They could make more careful use of "National Formulary" preparations by referring to the two tables of proprietary preparations in the "Formulary" (those for which an identical preparation is available in the "Formulary" and those for which there is a "Formulary" preparation substantially the same or reputed to have an analogous therapeutic effect) and always prescribe a "Formulary" preparation unless there was a special reason to do otherwise. Incidentally, the Minister pointed out, the "Formulary" preparations were recommended by experts of the medical and pharmaceutical professions (quite independently of the Ministry of Health), and there was no reason to regard them as inferior simply because they were cheaper. 2. Practitioners could satisfy themselves before prescribing a proprietary preparation not included in the two "Formulary" lists that there were adequate grounds for accepting its therapeutic value in treating the particular condition for which it was prescribed. 3. Practitioners could resist pressure from patients to prescribe particular preparations that had been recommended or that they had read about in technical or semitechnical journals. 4. Practitioners could also refrain from prescribing unreasonably large quantities of a drug or dressing.

The steps being taken by the Ministry included the issuing of a price list of "Formulary" preparations and proprietary preparations listed in the "Formulary" or occupying a high place on the basis of frequency of prescribing. Physicians would thus be made fully aware of the cost of what they were prescribing. In addition, there would shortly be published the Cohen committee's classification of proprietary preparations. This would enable physicians to be told the names of preparations in the two "doubtful" categories covering drugs that were not of proved therapeutic value and might not be prescribed. Simultaneously the Ministry was proceeding, in consultation with the manufacturers, to investigate the production costs of selected proprietary preparations in the categories that the Cohen committee considered prescribable subject to satisfactory price arrangements.

While the problem may be a relatively simple one from the point of view of the Minister of Health, the implications, if he succeeds in his economy drive, are far from simple. One of the most serious implications is the effect on the research budgets of the leading pharmaceutical houses. The Minister has consistently paid tribute to the considerable amount of research done by these companies, but he has tended to take the line that his major interest is the drug bill and that research and, incidentally, export sales are not his responsibility. That the pharmaceutical companies are becoming worried about the future of their research departments is well brought out in the recently published annual report of the chairman of the company owing the largest chain of retail pharmacies in the United Kingdom. According to the *Pharmaceutical Journal*, this chairman "declares that unless British firms are allowed to recover the cost of research in the products they sell, they cannot continue to spend money on research. This could only mean that more and more specialties would have to be brought from abroad, principally the United States and Germany, where immensely more money is spent on research than in this country. . . . If the Minister's plans result in the Service becoming unremunerative to the pharmacist on the present terms then the dispensing fee must be raised to keep him on an even financial keel."

Toxicity of Phenylbutazone.—The toll of phenylbutazone toxicity mounts steadily, and within a fortnight the *Lancet* and *British Medical Journal* have published four reports on the subject. In a series of 109 patients suffering from various rheumatic conditions, J. R. Nassim and T. Pilkington (*Brit. M. J.* 1:1310 [June 13] 1953) report that 46 persons suffered from toxic reactions severe enough to necessitate stopping the therapy of a daily dose of phenylbutazone from 0.2 to 1.2 gm. (average, 0.6 gm.). The reactions included severe anorexia and upper abdominal pain, dryness of the mouth and throat leading to ulceration, punctate erythematous rashes, cervical glandular enlargement, vertigo, and granulopenia. There were no fatalities. According to J. C. Leonard (*Brit. M. J.* 1:1311 [June 13] 1953) 356 toxic effects, occurring in 1,526 patients treated with phenylbutazone, have been recorded in the literature, showing an incidence of 22%. He reports two new cases: a fatal one of aplastic anemia and a case of agranulocytosis. In the *Lancet* (1:1227 [June 20] 1953) Derek Freeland and co-workers record an incidence of 67 reactions in a series of 164 patients (40%) on a daily dose of 200 mg. or less. In half the cases the toxic effects wore off although the therapy was continued. There were no fatalities. Another fatality is reported by Nancy V. Dilling (*Lancet* 1:1230 [June 20] 1953) following the development of a complete agranulocytosis in a 53-year-old woman who had been treated for a relatively short period on a daily dose of 600 to 400 mg.

PARIS

Detection of Tuberculin Allergy.—This technique for detection of tuberculin allergy is essentially a simplification by Drs. Besson, Dassonville, and Giraud of the "Finnish" process. They reported to the National Academy of Medicine the results of their studies of 4,000 intradermal reactions. The following technique was employed: Sterile individual short bevel needles 15 to 20 mm. long were used for intradermal injection. A 1 cc. vial of tuberculin from the Pasteur Institute is used. The skin of the left acromioclavicular region was cleansed with alcohol; the needle, held by the right thumb and forefinger, was dipped in the small vial of tuberculin and with the skin held tight between the left thumb and forefinger, a tiny droplet of tuberculin was deposited on it by a left to right wiping up motion. Then, by an inverse movement, the needle was pushed almost tangentially to the skin, only the bevel penetrating the dermis through the deposited droplet of tuberculin. The amount of tuberculin injected is about 0.25 mg. The authors stress that it is necessary to always use needles of the same bore and length of bevel. The results are read on the seventh day. Positive reactions are evidenced by erythematous papules from 2 to 10 mm. in diameter. Occasionally more intense reactions are noted. The reading of the reaction by sight and palpation is comparable to that of the Mantoux reaction. The authors used this method for the detection of allergy in 1,500 children before and after vaccination with BCG. They observed 95% of vaccinated children have positive reactions two months after vaccination by scarification.

Prophylaxis of Poliomyelitis.—A team of scientists of the Casablanca (Morocco) Pasteur Institute have reported on their research on the poliomyelitis virus in the rabbit. They announced their results to the National Academy of Medicine and, according to them, this rabbit virus is innocuous to man. When taken orally by man, it caused no accidents and was present in the stools for 100 days. After several experiments on the possible effect of this virus on humans, oral vaccination was undertaken in the beginning of 1953 on 5,699 children in two quarters of Casablanca where cases of poliomyelitis had been reported.

Determination of Heparin Blood Levels.—Protamine sulfate neutralizes the antithrombin activity of heparin. Starting from this fact, J. L. Baumont evolved a new method for determining the heparin contents of blood and other body fluids. The rapidity of blood coagulation depends solely on the thrombin, fibrinogen, and antithrombin content. The only antithrombin activity of heparin is neutralized by protamine sulfate. The new method of thrombin determination consists of measuring the amount of thrombin by which an increased prothrombin time is brought back to a stable level. The new technique detects as little as 0.005 parts per thousand of heparin in the plasma. The author reported on this technique at the meeting on March 19 of the French Society for Hematology. He stressed that it offers the advantages of being more sensitive and of yielding fewer errors than other methods.

LONDON

Vegetable Juices.—In a recent issue of the *Monthly Bulletin of the Ministry of Health and the Public Health Laboratory Service* (12:78 [April] 1953) H. E. Magee published an analysis of some of the better known constituents of vegetable juices. These are summarized in the following table, in which the figures in parentheses represent the content of the vegetable (as opposed to the juice):

Juice	Total Sugars (as Glucose) Grams per 100 Ml. (Gm.)	Iron, Mg. per 100 Ml. (Gm.)	Calcium, Mg. per 100 Ml. (Gm.)	Vitamin B_1, Mg. per 100 Ml. (Gm.)
Broccoli leaves	3.00 (0.4)	0.60 (1.52)	18.70 (160)	15.0
Cabbage	4.17 (8.3)	1.02 (1.0)	16.90 (65)	75.0 (75)
Carrots	7.11 (5.4)	0.30 (0.6)	0.49 (48)	30.0 (60)
Celery	2.08 (1.2)	0.43 (0.6)	0.62 (52)	15.0 (30)
Kale	3.71	1.60 (2.5)	11.60 (200)	15.0 (120)
Melon	4.33	0.42	0.40	30.0
Parsley	0.44 (8.8)	1.12 (8.0)	6.30 (325)	30.0 (120)
Spinach	1.85 (1.2)	1.02 (4.0)	0.75 (595)	Nil (100)
Tomato	3.06 (2.8)	0.08 (0.4)	4.05 (13)	15.0 (60)
Watercress	0.20 (0.6)	2.12 (1.6)	2.90 (222)	30.0 (120)

In the case of vitamin C, only kale juice was found to have any appreciable amount, 46 mg. per 100 ml.; this was probably due to the absence of oxidases or that of antioxidases. Investigations showed that the vitamin C in many vegetable juices was quite unstable. The reaction of all the juices examined was very close to neutrality, and it was found that they practically all had a high buffering capacity. When milk, which is well known for its buffering capacity, was used as the standard, spinach juice was found to surpass it, while the juices of cabbage, kale, and parsley were not far behind. The comment is made that "the high buffering capacity of the juices suggests that they might be valuable in the treatment of hyperchlorhydria." It is noted that the reaction of the fresh juices, and their buffering capacities, would favor bacterial growth at suitable temperatures; "perhaps the most to be feared is *B.* botulinus." Juices can be preserved in three ways: "(1) by ensuring scrupulous cleanliness of the vegetables and then keeping the juice at refrigerator temperature from the time of expression until consumption, (2) by pressure sterilization, and (3) by lowering the pH to 4.2 or less, followed by low temperature pasteurisation." Attention is also drawn to the significant amounts of minerals in vegetable juices and to recent work indicating that some green vegetables, and their juices, contain appreciable amounts of some of the essential amino acids.

On the relative merits of juices as compared with whole vegetables, the view is expressed that "for the healthy person then, vegetable juices can hardly be regarded as a substitute for whole vegetables and their place in the normal diet would seem to be merely as an appetiser or cocktail." On their therapeutic value the position is summed up as follows: "Claims are made that various juices in amounts up to 500 ml. daily are beneficial in hyper-tension, certain types of cardiovascular and kidney disease and in obesity, but it is not clear to what extent other elements in the therapy employed, e. g., low calorie diets and low sodium chloride, were contributory factors. Good effects have also been ascribed to the juices in rheumatic, degenerative and toxic states, and they are probably attributable to their all-around protective action. The evidence indicates that good results are to be expected from large amounts of juices (up to 1 litre daily) in the treatment of peptic ulceration. But they have also given good results in the treatment of diarrhoea, colitis and toxaemia of gastro-intestinal origin."

Antibiotic Production in the United Kingdom.—It has just been reported that the output of penicillin in this country in April constituted an all-time record: the average weekly output was 2,136,600 megaunits. This compares with 1,296,000 megaunits in 1952 and 723,700 megaunits in 1951. For the first four months of the year exports of penicillin salts and preparations amounted to 17,500,000 megaunits, compared with just over 12 million megaunits in the same period last year. In February, 1953, the price was further cut by 3s.9d. to 21s.3d. per 5 megaunits. In reporting these figures, the *Financial Times* also announces an interesting development in the antibiotic field, whereby a British company "has made an arrangement with an American company to make the crude broth from which aureomycin is extracted," and it is expected that a substantial output will be reached by September. According to the same course, "this will make the United Kingdom independent of the imported crude which is now coming from the United States. . . . The implications . . . are many. It could mean that aureomycin will be available to doctors on the same basis as penicillin when it becomes wholly made in England. At present these drugs [i. e., aureomycin and oxytetracycline] can only be used by hospitals and doctors in special cases."

Ambulance Service Costs.—Figures just issued for the year ended March 31, 1952, show that the Ambulance Service cost the country £8,608,828 during this year. An analysis of this figure shows that 56.4% was spent on the operational staff, 20.3% on the fueling and maintenance of vehicles, 6% on provision of vehicles, 2.8% on maintenance of such things as buildings and furniture, 1.2% on provision of land and buildings, and 13.3% on other expenditures, including administrative expenses. During the year the service conveyed 11 million patients, and the mileage covered was 92 million miles. This compares with 9 million patients and 89 million miles in the previous year. The average cost per patient fell from 15s.6d. to 15s.2d., and the average number of miles run per patient fell from 9 to 8.3. The number of ambulances and cars in use was 4,411. In addition a large number of private cars were available on a voluntary basis through the Hospital Car Service, and 15,000 patients traveled by rail under arrangements made by local health authorities.

The Nation's Drug Bill.—The serious view that the government takes of the rising drug bill is well demonstrated by the fact that Mr. Lan Macleod, the Minister of Health, attended in person the Annual Conference of Local Committees of the British Medical Association in order to appeal for the support of the medical profession in his efforts to reduce this unruly item without disciplinary action. He described the rising cost of the drug bill as one of the gravest and most urgent problems that confronted the National Health Service. He said that the exchequer could not go on paying an annual bill of something like 40 million pounds for drugs prescribed by general practitioners (when the whole range of dressings and appliances prescribed is considered, the figure is nearer 60 million pounds) unless the drugs were all essential for the proper treatment of patients.

He advanced two major reasons for the increase in the drug bill from £31,500,000 in 1949-1950 to an estimated figure of £46,500,000 in 1953-1954: (1) an increase in the total number of prescriptions dispensed, over 200 million a year (the latest figures just announced are those for August, 1952: 12,953,542 at a total cost of £2,709,428, or an average of 50.2d. per prescription), and (2) an increase in the average cost of prescriptions from 2s.9d. in 1948-1949 to an estimated 4s.3d. in 1953-1954, due to (*a*) the introduction of new valuable but expensive drugs, (*b*) the rise in the ingredient prices until this year, though some drugs, e. g., some of the antibiotics, were considerably cheaper, and (*c*) the prescribing of an increased proportion of proprietary preparations (in 1952, proprietaries represented 26% of the total number of prescriptions, 52% of their total ingredient cost, and 44.5% of their total cost).

He quoted a few examples of how widespread prescribing of proprietary, as opposed to official (or standard), preparations was pushing up the drug bill. One was a proprietary reducing preparation, which, if prescribed by its standard name, would have produced a savings of about £242,000 in 1951. The second included proprietary tablets containing aspirin, acetophenetidin, and codeine, which cost 6s.3½d. for 50, compared with 2s.11d. for 50 of the comparable standard preparations. The third was proprietary asthma inhalants, which might cost four to six times as much as a standard inhalant, with no evidence that there was anything to choose between proprietary and standard preparations from the point of view of therapeutic efficacy. It has been estimated that a sum of around £50,000 could be saved if comparable standard preparations were used instead of proprietary preparations in the treatment of peptic ulcer and heart disease.

The minister then proceeded to indicate that practical ways in which practitioners could assist him in reducing this expenditure on drugs. 1. They could make more careful use of "National Formulary" preparations by referring to the two tables of proprietary preparations in the "Formulary" (those for which an identical preparation is available in the "Formulary" and those for which there is a "Formulary" preparation substantially the same or reputed to have an analogous therapeutic effect) and always prescribe a "Formulary" preparation unless there was a special reason to do otherwise. Incidentally, the Minister pointed out, the "Formulary" preparations were recommended by experts of the medical and pharmaceutical professions (quite independently of the Ministry of Health), and there was no reason to regard them as inferior simply because they were cheaper. 2. Practitioners could satisfy themselves before prescribing a proprietary preparation not included in the two "Formulary" lists that there were adequate grounds for accepting its therapeutic value in treating the particular condition for which it was prescribed. 3. Practitioners could resist pressure from patients to prescribe particular preparations that had been recommended or that they had read about in technical or semitechnical journals. 4. Practitioners could also refrain from prescribing unreasonably large quantities of a drug or dressing.

The steps being taken by the Ministry included the issuing of a price list of "Formulary" preparations and proprietary preparations listed in the "Formulary" or occupying a high place on the basis of frequency of prescribing. Physicians would thus be made fully aware of the cost of what they were prescribing. In addition, there would shortly be published the Cohen committee's classification of proprietary preparations. This would enable physicians to be told the names of preparations in the two "doubtful" categories covering drugs that were not of proved therapeutic value and might not be prescribed. Simultaneously the Ministry was proceeding, in consultation with the manufacturers, to investigate the production costs of selected proprietary preparations in the categories that the Cohen committee considered prescribable subject to satisfactory price arrangements.

While the problem may be a relatively simple one from the point of view of the Minister of Health, the implications, if he succeeds in his economy drive, are far from simple. One of the most serious implications is the effect on the research budgets of the leading pharmaceutical houses. The Minister has consistently paid tribute to the considerable amount of research done by these companies, but he has tended to take the line that his major interest is the drug bill and that research and, incidentally, export sales are not his responsibility. That the pharmaceutical companies are becoming worried about the future of their research departments is well brought out in the recently published annual report of the chairman of the company owing the largest chain of retail pharmacies in the United Kingdom. According to the *Pharmaceutical Journal*, this chairman "declares that unless British firms are allowed to recover the cost of research in the products they sell, they cannot continue to spend money on research. This could only mean that more and more specialties would have to be brought from abroad, principally the United States and Germany, where immensely more money is spent on research than in this country. . . . If the Minister's plans result in the Service becoming unremunerative to the pharmacist on the present terms then the dispensing fee must be raised to keep him on an even financial keel."

Toxicity of Phenylbutazone.—The toll of phenylbutazone toxicity mounts steadily, and within a fortnight the *Lancet* and *British Medical Journal* have published four reports on the subject. In a series of 109 patients suffering from various rheumatic conditions, J. R. Nassim and T. Pilkington (*Brit. M. J.* **1**:1310 [June 13] 1953) report that 46 persons suffered from toxic reactions severe enough to necessitate stopping the therapy of a daily dose of phenylbutazone from 0.2 to 1.2 gm. (average, 0.6 gm.). The reactions included severe anorexia and upper abdominal pain, dryness of the mouth and throat leading to ulceration, punctate erythematous rashes, cervical glandular enlargement, vertigo, and granulopenia. There were no fatalities. According to J. C. Leonard (*Brit. M. J.* **1**:1311 [June 13] 1953) 356 toxic effects, occurring in 1,526 patients treated with phenylbutazone, have been recorded in the literature, showing an incidence of 22%. He reports two new cases: a fatal one of aplastic anemia and a case of agranulocytosis. In the *Lancet* (**1**:1227 [June 20] 1953) Derek Freeland and co-workers record an incidence of 67 reactions in a series of 164 patients (40%) on a daily dose of 200 mg. or less. In half the cases the toxic effects wore off although the therapy was continued. There were no fatalities. Another fatality is reported by Nancy V. Dilling (*Lancet* **1**:1230 [June 20] 1953) following the development of a complete agranulocytosis in a 53-year-old woman who had been treated for a relatively short period on a daily dose of 600 to 400 mg.

PARIS

Detection of Tuberculin Allergy.—This technique for detection of tuberculin allergy is essentially a simplification by Drs. Besson, Dassonville, and Giraud of the "Finnish" process. They reported to the National Academy of Medicine the results of their studies of 4,000 intradermal reactions. The following technique was employed: Sterile individual short bevel needles 15 to 20 mm. long were used for intradermal injection. A 1 cc. vial of tuberculin from the Pasteur Institute is used. The skin of the left acromioclavicular region was cleansed with alcohol; the needle, held by the right thumb and forefinger, was dipped in the small vial of tuberculin and with the skin held tight between the left thumb and forefinger, a tiny droplet of tuberculin was deposited on it by a left to right wiping up motion. Then, by an inverse movement, the needle was pushed almost tangentially to the skin, only the bevel penetrating the dermis through the deposited droplet of tuberculin. The amount of tuberculin injected is about 0.25 mg. The authors stress that it is necessary to always use needles of the same bore and length of bevel. The results are read on the seventh day. Positive reactions are evidenced by erythematous papules from 2 to 10 mm. in diameter. Occasionally more intense reactions are noted. The reading of the reaction by sight and palpation is comparable to that of the Mantoux reaction. The authors used this method for the detection of allergy in 1,500 children before and after vaccination with BCG. They observed 95% of vaccinated children have positive reactions two months after vaccination by scarification.

Prophylaxis of Poliomyelitis.—A team of scientists of the Casablanca (Morocco) Pasteur Institute have reported on their research on the poliomyelitis virus in the rabbit. They announced their results to the National Academy of Medicine and, according to them, this rabbit virus is innocuous to man. When taken orally by man, it caused no accidents and was present in the stools for 100 days. After several experiments on the possible effect of this virus on humans, oral vaccination was undertaken in the beginning of 1953 on 5,699 children in two quarters of Casablanca where cases of poliomyelitis had been reported.

Determination of Heparin Blood Levels.—Protamine sulfate neutralizes the antithrombin activity of heparin. Starting from this fact, J. L. Baumont evolved a new method for determining the heparin contents of blood and other body fluids. The rapidity of blood coagulation depends solely on the thrombin, fibrinogen, and antithrombin content. The only antithrombin activity of heparin is neutralized by protamine sulfate. The new method of thrombin determination consists of measuring the amount of thrombin by which an increased prothrombin time is brought back to a stable level. The new technique detects as little as 0.005 parts per thousand of heparin in the plasma. The author reported on this technique at the meeting on March 19 of the French Society for Hematology. He stressed that it offers the advantages of being more sensitive and of yielding fewer errors than other methods.

CORRESPONDENCE

ARACHNIDISM

To the Editor:—In THE JOURNAL (152:609 [June 13] 1953) Maretic reports a case of arachnidism treated, after 24 hours of symptoms, by a single dose of 80 mg. of cortisone, with apparent cure. While cortisone is helpful in some cases of arachnidism, it fails in others, and in my experience it cannot be recommended for the routine treatment of these cases. In a series of 35 cases in which I had the opportunity to try various treatments, I feel that specific antivenin is the only adequate form of treatment. Although this product has not been available lately, its production is now being resumed. In my cases not treated by antivenin, the duration of symptoms lasted from 12 to 211 hours. It is this natural variation in the duration of symptoms that accounts for the apparent success of various treatments published in isolated case reports, rather than the effectiveness of the recommended medication. One case illustrates the failure of cortisone and corticotropin in arachnidism. A 16-year-old white boy was bitten on the finger by a black widow spider on the afternoon of Aug. 14, 1952. He was hospitalized at 9 p. m. that night and discharged apparently well the morning of Aug. 17. While in the hospital, his treatment consisted of the administration of 50 units of corticotropin (ACTH), 250 mg. of cortisone, 200 mg. of meperidine (Demerol) hydrochloride, and two ampuls of calcium gluconate. These medications were given according to the recurrence of pain. After his discharge from the hospital and 16 hours after the last dose of cortisone was given, there was an exacerbation of acute symptoms. The boy was given one ampul of antivenin, and relief was permanent.

LEON J. TAUBENHAUS, M.D.
Shallotte, N. C.

LEPROSY

To the Editor:—The article "Alopecia Leprotica: Its Relationship to Transmission of Leprosy," which appeared in THE JOURNAL, June 13, 1953, page 573, elicits some comments. During my 19 years in China, I was particularly interested in the study of leprosy. I had ample opportunity to investigate several aspects of the problem in the course of my visits to leprosaria throughout the Far East, in my clinic work at the National College of Medicine, and in my work as clinical chief of the National Leprosarium in Shanghai. I have never seen alopecia of the scalp in neural leprosy in the Chinese, although it is not infrequent among the Japanese. This racial factor of the clinical manifestation of leprosy is striking; for example, neural abscesses occur only among Hindus, lazarine leprosy is observed only in Cuba, and spotted leprosy of Lucio has been described only in Mexico. On the other hand, alopecia of the scalp and of the eyebrows in lepromatous leprosy occurs not only in China but in other parts of the world where leprosy is endemic and where shaving a child's scalp is not practiced. One of the leading leprologists, Robert Cochrane ("Practical Textbook of Leprosy," New York, Oxford University Press, 1947, p. 60), makes the following statement: "While some authorities state that the scalp is not affected in leprosy, in certain races, particularly the Mongolian and European, a leprous alopecia is sometimes seen." Alopecia in lepromatous leprosy is due to the lepromatous infiltration of the hair follicles and the hair papillae that leads to either atrophy or destruction of the latter or both. In such instances, leprosy bacilli can be found without difficulty, but they cannot be found in cases of hair loss of the eyebrows or the scalp resulting from neurotrophic disturbances (neural leprosy). The extent and severity of the alopecia in lepromatous leprosy depends largely on the degree of the lepromatous infiltration. This has been demonstrated by numerous investigators. On the other hand, up to the present time, exact clinical data and experimental evidence are unavailable in the literature dealing with the mode of the progress of the disease. It seems unconvincing, therefore, to state that the involvement of the scalp is related to "the habit of shaving the scalp of newborn infants." Also, alopecia of the scalp does not necessarily develop at the site of the assumed primary focus but can and does develop in persons in whom the infection entered any skin area other than the scalp. It is speculative to make statements regarding the development and the method of progress of leprosy on the basis of the clinical material presented. The "histological verification" of the clinical lesions as lepromatous does not conform with the usual concept of lepromatous tissue changes. A microscopic picture showing "marked lymphocytic infiltration, persistent involvement of the sweat glands, and the presence of varying numbers of macrophages" is insufficient to label a section lepromatous, despite the presence of acid-fast bacilli.

The relative immunity of adults is well known. The author's terse statement, however, "that most reported cases are open to question," without indicating a valid reason, must be challenged. While early childhood is the most susceptible period, I have observed adults, mostly missionaries, who contracted the disease in China or the Philippine Islands, yet, none of these patients lived in an area in which leprosy was endemic during their childhood.

FREDERICK REISS, M.D.
870 Fifth Ave.
New York 21.

MEDICAL ASSOCIATION OF THE ISTHMIAN CANAL ZONE

To the Editor:—The Medical Association of the Isthmian Canal Zone is unique in that, while there are a certain number of permanent members who reside in the Canal Zone or the Republic of Panama, a large percentage of the membership is made up of service officers and others who spend a few years in the Zone and then proceed to posts in the United States or abroad. The 558th meeting of the Medical Association of the Isthmian Canal Zone was held recently at the Palo Seco Leper Colony, Canal Zone. The meeting took the form of a "Symposium on Leprosy" arranged by the scientific committee under the chairmanship of Dr. Jack Strumpf. A school bus was secured by Lieutenant Colonel Beaudry of Gorgas Hospital to supplement private cars in conveying the large group of physicians to the leprosarium. Both the junior and senior physicians were eager to avail themselves of this special opportunity that they may never have again after leaving the Zone. We made a tour through the beautiful grounds on the shore of the Pacific and through the buildings and patients' quarters, before supper was served. Then came a short business meeting and the symposium. Dr. Ezra Hurwitz, superintendent of the leprosarium, was the moderator. Having a little over 120 patients, Dr. Hurwitz was able to choose interesting cases of leprosy of all types and stages. Following his talk and a demonstration of cases, a panel of physicians from the Army, Gorgas Hospital, and the Health Director's Office continued the discussion from the viewpoint of the various specialties. Those on the panel were Col. Francis E. Council, Col. Earl C. Lowry, Col. Louis S. Leland, Col. M. C. Davenport, and Lieut. Col. Edward J. Dehne and Drs. Amade V. Mastellari, Benjamin Boyd, and Walter G. Nelson, medical director, U. S. P. H. S.

WALTER G. NELSON, M.D.
Chairman, Publicity and
Public Relations Committee
Balboa Heights, Canal Zone

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Evidence: Admissibility of Results of Truth Serum Tests.—The defendant was convicted of murder and from such conviction appealed to the Supreme Court of New Mexico.

At the trial the defendant, after having made conflicting statements, offered to prove by narcoanalysis that his testimony that he did not kill the deceased was the true story. The evidence of a psychiatrist was taken, in the absence of a jury, to show that, when thiopental (Pentothal) sodium was administered to anyone in the proper amount and by one skilled in the work, the truth could be obtained from the person to whom the drug had been administered and that such was a fact generally recognized in medical circles. Another psychiatrist was called as a witness to refute this testimony, however, and he did so in a manner that was convincing to the trial judge. The testimony offered by the defendant was, therefore, rejected by the trial court on the ground that such tests were not reliable or generally approved and accepted by members of the medical profession specializing in psychiatry. Among other assignments of error, the defendant contended that the trial judge should have permitted the psychiatrist to testify that he gave sodium Pentothal to the defendant and then questioned him on many points, and as a result of this examination it became very clear that the defendant did not kill the deceased, that the confessions he made were false, and that he told a true and accurate story of his connection with the case that was identical in all respects to the story he told on the witness stand.

The defendant frankly states that no court, so far as he knows, has held such testimony admissible, but he says it is time some court did so. He quoted from Herzog's "Medical Jurisprudence," § 472, on the results obtained by scopolamine as a crime detector in which instances are given of the truth having been obtained; the article supports its use. It admits, however, that wrong answers may be obtained if insufficient amounts of the drug are administered and that wrong answers may be obtained if the subject has either not yet reached the examination stage or has passed out of it.

On the other hand, the state produced an article entitled "The Judicial Use of Psychonarcosis in France" printed in the *Journal of Criminal Law and Criminology* (40:370), from which we quote:

"Professor Delay and the majority of Psychiatrists assert that psychonarcosis is not able to check the determined will of concealing a precise point, while Dr. Scharlin, chief of the Neuropsychiatric department of the Regional Hospital Department of Bescancon, gives the following results of about a hundred experiments which have been undertaken under conditions similar to those which are met with in judicial matters. In 12% cases the results prove completely satisfactory; for instance, a miner subjected to narcosis said the following: 'It's queer your stuff; makes one talk all right, the murderers need to be mightly careful with you.' In 30% cases the examination is only able to obtain precisions on secondary details, as the will controls the important answers; finally, in about 60% cases, the results are completely negative."

The article further states: "In France, psychonarcosis has never been used for obtaining a suspect's confession, except in a few experiments which have no judicial value."

The *American Journal of Psychiatry* (107:586-593 [Feb.] 1951) has an article by Frederich C. Redlich, M.D., professor of psychiatry, Yale University School of Medicine, Leonard J. Ravitz Jr., M.D., and George H. Session, LL.D., Lines Professor of Law, Yale Law School, on experiments made on nine persons who received amobarbital (Amytal) sodium intravenously and were questioned while under its influence. Each of the subjects had a true and a cover story. We quote from page 589 of the article:

"It is of interest that the 3 subjects diagnosed as normal (i. e., persons who perform adequately in their various functions, have good defenses and no highly pathological characteristics) maintained their cover stories. Of the 6 subjects diagnosed as neurotic, 2 promptly revealed the true story; 2 made partial admissions, consisting of a complex pattern of fantasy and truth; one admitted what most likely was a fantasy as truth; and the one obsessive-compulsive individual maintained his cover story except for one parapraxia, (faulty or blundering action). We were particularly struck by the fact that G. U. and S. S., who confessed readily, had strong unconscious guilt feelings.

"The fantasies under sodium amytal can be understood only in the light of intimate knowledge of the subjects' unconscious processes. Such fantasies produced during the sodium amytal interview at times had the character of a confession as in the case of K. D., who confessed to beating the plumber, while in reality probably only the subject was beaten. Such fantasies are similar to dreams and daydreams; at times they have a highly symbolic character as in C. Y. when she spoke of the disgusting beard of a sexualized father figure, while this particular person in reality had no beard. . . ."

The Supreme Court of Missouri in State v. Hudson, Mo. Sup., 1926, 289 S.W. 920, refused the offered testimony of a physician that he had administered truth serum to a defendant and the answers made to questions asked while under the influence of the drug. The court, in an interesting opinion, rejected the claim of error on account of the refusal to admit such testimony, classifying it as a self-serving declaration and unworthy of consideration in the present state of human knowledge.

We agree that the courts should keep step with scientific developments but believe the statements in State v. Bohner, 210 Wis. 651, 246 N.W. 314, 317, 86 A.L.R. 611, are applicable to this case and reflect our present views. We quote:

"It seems to us that this statement offers little comfort to one who contends that this device is past the experimental stage. While it may have some utility at present, and may ultimately be of great value in the administration of justice, it must not be overlooked that a too hasty acceptance of it during this stage of its development may bring complications and abuses that will over-balance whatever utility it may be assumed to have. The present necessity for elaborate exposition of its theory and demonstration of its practical working, in order to convince the jury of its probative tendencies, together with the possibility of attacks upon the soundness of its underlying theory and its practical usefulness, may easily result in a trial of the lie detector rather than the issues in the cause. If the defendant in a criminal case is to be permitted to have tests taken outside of court and then produce expert testimony as to the results of the tests when these are favorable to him, without the necessity of taking the stand or submitting to tests by the prosecution, the way would seem to be open to abuses that would not promote the cause of justice. It is our conclusion that the refusal of the trial court to admit this testimony was not error."

Statements made by a defendant while under the influence of thiopental were held inadmissible as self-serving and hearsay by the District Court of Appeals of California in People v. McNichol, 100 Cal. App. 2d 554, 224 P. 2d 21.

We conclude that the trial court did not err in refusing to admit the testimony of Dr. Gore by which it was sought to show the questions asked the defendant and answers made by him while he was under the influence of the drug.

Until the use of the drug as a means of procuring the truth from persons under its influence is accorded general scientific recognition, concluded the Supreme Court of New Mexico, we are unwilling to enlarge the already immense field in which medical experts, apparently equally qualified, express such diametrically opposite views on the same facts and conditions, to the despair of the court reporter and the bewilderment of the fact finder.

Other contentions of the defendant were also overruled and the judgment of conviction was, therefore, affirmed. *State v. Lindemuth, 243 P. (2d) 325 (New Mexico, 1952).*

Hospitals in General: Liability for Injuries Caused by Drunken Patient.—This was an action for damages for personal injuries alleged to have been sustained by the plaintiff as a result of the defendant hospital's negligence in failing to protect plaintiff from injuries caused by the violence of another patient who was intoxicated. From a judgment of the trial court that denied the plaintiff's motion to have a new trial and to vacate a directed verdict in favor of the defendant, the plaintiff appealed to the Supreme Court of Minnesota.

The plaintiff was admitted to the defendant hospital for an appendectomy and, after the operation, was placed in a six-bed ward to convalesce. On Dec. 21, the stitches were removed in anticipation of his release from the hospital the next day. On the evening of that day, another patient, Red Hanson, came into the plaintiff's ward in such an intoxicated condition that he was staggering back and forth. Red threw himself onto plaintiff's bed and in so doing pushed it until it was almost against the next bed. After pulling the sheets off plaintiff, Red grabbed plaintiff's fingers and twisted them so as to cause pain. When plaintiff protested, Red became angry and took off his nightgown, which he rolled into a ball and threw at another patient. After 20 to 30 minutes of such disturbance, plaintiff asked Red to leave the room. Red said that he would if the plaintiff would help him put on his bathrobe. While plaintiff was assisting him, Red suddenly struck plaintiff in the abdomen adjacent to the appendectomy incision. As a result of the blow, plaintiff suffered considerable pain and injury, for which he seeks by this action to recover damages from the hospital on the theory that it was negligent in permitting Red to move about the hospital in an intoxicated condition, thereby endangering plaintiff's safety. The evidence indicated that on other occasions Red had staggered into the plaintiff's ward in a drunken condition, and it further appeared that in order to reach the plaintiff's ward Red had to walk the full length of the hospital. In short, there was evidence from which a jury could reasonably find that the defendant hospital knew, or ought to have known, that Red, as one of its patients, was wandering about the hosptial in an intoxicated condition; but there is no satisfactory evidence that it actually knew that, when intoxicated, he was possessed of vicious tendencies.

A private hospital, said the Supreme Court, although it is not an insurer of the safety of a patient, must exercise such reasonable care for the protection and well-being of a patient as his known physical and mental condition requires or as is required by his condition as it ought to be known to the hospital in the exercise of ordinary care. As to the danger reasonably to be anticipated from the acts of another person under the hospital's control, the reasonable care to be exercised must always be in proportion to the patient's inability to look after his own safety. The standard of reasonable care is that which would be exercised by a reasonably prudent person under the same or similar circumstances and does not require the taking of precautionary measures to avert a danger that a reasonable person would not anticipate as likely to happen. Thus, the court continued, a hospital that accepts patients who are either insane or suffering from some other mental disorder under such circumstances that the hospital either has actual knowledge, or the circumstances are such that by the exercise of reasonable care it should have known, of the patient's dangerous and assaultive tendencies has been held liable to other patients for injuries inflicted on them by such patient. The law from ancient times has recognized that an intoxicated person is likely to cause injuries not only to himself but to others.

In the light of the unpredictable behavior of an intoxicated person as a well-recognized source of danger to others, concluded the Supreme Court, it follows that where defendant hospital knew, or in the exercise of reasonable care ought to have known, that one of its patients was so intoxicated as to stagger when walking, it ought to have anticipated—although it did not actually know that the patient was vicious or aggressive when drunk—that to permit him to wander about the hospital unguarded was likely to result in injury to other patients, and it is liable for any injury that proximately resulted from his intoxicated condition, although it could not have anticipated the particular injury that did happen.

Accordingly the trial court's order refusing to grant a new trial and its directed verdict in favor of the defendant hospital were reversed. *Sylvester v. Northwestern Hospital of Minneapolis, 53 N.W. (2d) 17 (Minnesota, 1952).*

Admissibility in Evidence of Chemical Tests for Intoxication.—The defendant was convicted of manslaughter, and from the judgment of conviction he appealed to the criminal court of appeals of Oklahoma.

At the trial, Lieutenant Hopper of the Oklahoma City police department testified that he had been with the department over 20 years and that at about 7:20 the evening that the defendant was arrested, defendant was brought to him to take the drunkometer test. He said: "The officers brought the man in and asked me to give him the Drunkometer test. I explained the Drunkometer machine to the gentleman and then told him that we would give him a test if he would consent to it, to blow up the balloon to ascertain how much alcohol he had in his blood stream. He did not object. He blew up the balloon and I gave the test." Lieutenant Hopper further testified that no threats were made or promises made and that the test was strictly voluntary. The lieutenant had the drunkometer in court and explained in detail how it operated. He stated that it showed that the defendant had 0.155 of 1% alcohol in his blood stream.

Lieutenant Gunn of the Oklahoma City police department testified that he had been with the department over 20 years, that he was a graduate of the Northwestern University Traffic Institute, and that he had received about 40 hours training in the fundamentals of chemistry and the physiological effect of alcohol on the human body at the University of Oklahoma School of Medicine. He studied under Dr. Harger, inventor of the drunkometer, when at Northwestern University. He stated that the National Safety Council, the American Medical Association, the American Bar Association, the Federal Bureau of Identification, the International Association of Chiefs of Police, and others had endorsed the drunkometer test. He stated that in 1947, the Oklahoma City police department acquired a drunkometer. To be sure of its reliability, they turned the instrument over to the dean of the Oklahoma School of Medicine, who kept it a number of months to conduct experiments and make tests to prove its reliability. He stated that the instrument was found to be accurate. The police department then conducted around 500 tests on drunks and on persons who had only onion, Sen-sen, or garlic, on the breath or on persons who had taken whiskey in the mouth and then spit it out or who had used a mouth wash. Lieutenant Gunn stated that he had conducted a school in the Oklahoma City police department on chemical tests for intoxication and physiological effects of alcohol on the human body as shown by the drunkometer and had taught the use of the drunkometer. He also said that if a person shows 0.15 of 1% of alcohol in his blood by weight he is definitely under the influence of alcohol and he has lost normal ability to control himself or to control his actions as would a normal person.

Dr. Shoemaker, professor of pharmacology at the University of Oklahoma School of Medicine, testified concerning the reliability of the drunkometer test for determining the amount of alcohol in a person's blood stream. He gave it as his expert opinion that a person shown to have 0.155% of alcohol by weight in his blood stream would show definite effects of alcohol. He stated that the amount of alcohol would slow such person's thinking to a marked degree; that he would have a slurring of his speech and a staggering gait; and that there would be a not very marked, but a definite loss of muscular coordination and loss of control of movements. He stated to get 0.155% by weight of alcohol in one's blood, a person would have to consume six or eight ounces of 100 proof whiskey, or approximately 12 bottles of 3.2 beer.

The Criminal Court of Appeals said that in a recent case (*Toms v. State, 239 P. (2d) 812; J. A. M. A.* **150**:1424 [Dec. 6] 1952) it approved the test in cases in which the accused voluntarily took the same. In this case, evidence indicated that the defendant had voluntarily taken the test and that there was no error in the record. Accordingly the evidence was admissible and the judgment of conviction was affirmed. *Lombness v. State, 243 P. (2d) 389 (Oklahoma, 1952).*

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Dermat. and Syphilol., Chicago

67:345-438 (April) 1953

Follicular Lichen Planus (Lichen Planopilaris). H. Silver, L. Chargin and P. M. Sachs.—p. 346.
Use of Cycloheximide Medium for Isolation of Dermatophytes from Clinical Materials. L. K. Georg.—p. 355.
Observations on Anticomplementary Reactions. A. G. Lighter.—p. 362.
Unusual Forms of Solar Dermatitis. R. J. Morgan, P. O. Shackleford and J. H. Lamb.—p. 369.
Nonpigmented Malignant Melanoma D'Emblee: Report of Case. H. Hecht. —p. 380.
*Dermatitis Venenata Due to Native Woods. L. F. Weber.—p. 388.
Squamous Cell Carcinoma of Vulva Secondary to Granuloma Inguinale. L. J. Alexander and T. L. Shields.—p. 395.
Mycosis Fungoides Diagnosis by Aspiration Technique; Observations in Skin and Bone Marrow. A. I. Swiller, F. Feldman and M. Morrison. —p. 403.
Lichen Amyloidosus Associated with Varicose Veins. M. Wolf.—p. 407.

Dermatitis Venenata Due to Native Woods.—A man, aged 59, attributed his generalized dermatosis and loss of weight to woodworking. There was no improvement during the first month of hospitalization and in the following months itching, chilliness, and sleeplessness became more annoying. Other disturbances were loss of weight, enormous enlargement of the superficial lymph nodes, and alopecia of the scalp and axillae. Repeated histological examination ruled out cutaneous lymphoblastoma. The allergic dermatitis and generalized adenopathy subsided after six months of hospitalization. The patient then worked only with poplar wood, and one week later he again had generalized dermatitis venenata. Presumably in the beginning a subacute dermatitis of the hands and forearms was due to sawdust of poplar. This dermatitis became generalized, and for months it simulated cutaneous lymphoblastoma. The second attack and the positive reactions to patch tests proved the sensitizing capacity of poplar sawdust. Furniture makers are exposed to heartwood, the central portion of the tree, which contains substances that are allergenic for some persons. The major components of wood, such as cellulose and lignin, are not at fault, but rather the resins, terpenes, oils, phenols, tannins, coloring matter, nitrogen-containing and acetyl-containing substances, and formic acid. Acacia, alder, ash, beech, birch, chestnut, cedar, creosote bush, elm, maple, mesquite, oak, pine, poplar, prune, and spruce are the native woods that are cutaneous sensitizers. Poplar produced allergic reactions quite frequently in the author's practice, but generally men showed no sensitization to sawdust for many years. Dermatitis venenata due to native woods usually had its onset between the ages of 40 and 60 years. Several workers became sensitized to a foreign wood and later to a native one, or vice versa. One patient became sensitized to four woods. He was forced to give up the sawing of wood but was able to handle the finished wood. Sawdust and fragments of wood produced by machine tools have sharp edges and injure the skin when they strike it with sufficient force. Occasionally dermatitis following such a trauma is the forerunner of sensitization dermatitis.

A.M.A. Arch. Ind. Hyg. & Occupat. Med., Chicago

7:367-454 (May) 1953

Distribution and Retention of Carrier-Free Radioberyllium in Rat. C. D. Van Cleave and C. T. Kaylor.—p. 367.
Design of New Five-Stage Cascade Impactor. J. D. Wilcox.—p. 376.
Cholinesterase Response and Symptomatology from Exposure to Organic Phosphorus Insecticides. W. T. Sumerford, W. J. Hayes Jr., J. M. Johnston and others.—p. 383.
Survey of Insecticide Spray Practices Used in Fruit Orchards of North Central Washington. G. S. Batchelor.—p. 399.
Procedure for Weighing Fluted Filters with Use of Aluminum-Foil Envelopes. P. A. Humphrey and D. M. Morgan.—p. 402.
New Method for Monitoring Air-Borne Dust. P. F. Holt and A. J. Chalk.—p. 404.
Dermatitis from Water Glass Caused by Synergistic Action with an Alkaline Detergent. G. E. Morris.—p. 411.
Space and Labor-Saving Devices in Industrial Dispensary: VII. Portable Clinical Laboratory Equipment for Field Use. J. S. Felton.—p. 413.

A.M.A. Arch. Internal Medicine, Chicago

91:577-694 (May) 1953

Fasting Blood Sugar in Hepatic Disease with Reference to Infrequency of Hypoglycemia. H. J. Zimmerman, L. J. Thomas and E. H. Scherr. —p. 577.
Lean Body Mass: Its Clinical Significance and Estimation from Excess Fat and Total Body Water Determination. A. R. Behnke, E. F. Osserman and W. C. Welham.—p. 585.
*Clinical Use of Triethylene Melamine: Report of 75 Cases. W. H. Bond, R. J. Rohn, R. W. Dyke and P. J. Fouts.—p. 602.
Effect of Diphenhydramine (Benadryl®) on Side-Reactions in Intravenous Urography. S. R. Bersack and T. E. Whitaker Jr.—p. 618.
Saccular Aneurysms of Abdominal Aorta: Report of Three Cases and Review. I. M. Baird.—p. 626.
Syphilis: Review of Recent Literature. H. Beerman. I. L. Schamberg, L. Nicholas and L. Katzenstein.—p. 633.
Ovarian Hilus Cell (Leydig Cell) Hyperplasia Associated with Masculinization. I. Taliaferro, E. J. Wells, S. Kay and R. H. Hoge.—p. 675.
Tachycardia and Spontaneous Flutter in an Adult: Report of Case with Rate of 300 and 1:1 Flutter. A. Smelin, J. Burstein, H. Blinder and A. Lubart.—p. 685.

Clinical Use of Triethylene Melamine.—Triethylene melamine, though similar to nitrogen mustard in its pharmacological effects, did not cause as much nausea and vomiting as nitrogen mustard. When the parenteral dose of triethylene melamine was doubled or given orally, it was equally effective. Bond and associates treated 75 patients with this drug. The drug was quite effective in 23 of 26 patients with chronic myelogenous leukemia of whom 18 were restored from invalidism to an active or productive life. In the initial course the authors employed 5 mg. tablets of triethylene melamine daily for 6 to 53 days, with an average of 20.3 days. The average total dose for the initial course was 101.5 mg. After satisfactory peripheral blood values were obtained, the patients were maintained on a dosage schedule averaging about 7.5 mg. per week. Tolerance to triethylene melamine was proportional to the white blood cell count. In Hodgkin's disease (14 cases) the results were not as favorable as those reported by other authors. Twelve patients with acute and subacute monocytic leukemia were treated with triethylene melamine, but the drug proved no more effective than any other agent. Its low toxicity, ease of administration, and flexibility of dosage merit its continued trial in this disease. In six of eight patients with chronic lymphocytic leukemia, a disease observed oftenest in elderly patients, treatment with triethylene melamine produced a satisfactory hematological response; lymphadenopathy, splenomegaly, and hepatomegaly were satisfactorily controlled in five patients. Chronic myelogenous leukemia and chronic lymphocytic leukemia were most effectively controlled by triethylene melamine. No significant hematological response was observed in four adults with leukolymphosarcoma. No significant benefits were observed in extramedullary lymphosarcoma, fibrosarcoma, Ewing's tumor, malignant melanoma, sarcoidosis, and polycythemia rubra vera. Secondary hemolytic anemia was temporarily controlled with triethylene melamine therapy in two patients. Toxic reactions to triethylene melamine were

---

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individual subscribers, provided they reside in continental United States or Canada. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover only the last 11 years, and no photoduplication services are available. No charge is made to members, but the fee for other borrowers is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

minimal and consisted principally of anorexia, nausea, and vomiting. While triethylene melamine does not replace any other agent presently used in the treatment of blood dyscrasias and malignant lymphomas, it is a valuable adjunctive form of therapy. Its ease of administration and the flexibility of dosage schedule are most advantageous.

A.M.A. Arch. Neurology and Phychiatry, Chicago

69:551-668 (May) 1953

*Cerebral Vascular Insufficiency: An Explanation of Some Types of Localized Cerebral Encephalopathy. E. Corday, S. F. Rothenberg and T. J. Putnam.—p. 551.
*Pyretotherapy in Ophthalmoplegic Migraine. J. S. Patrikios.—p. 571.
Cutaneous Perception in Aged. M. A. Green and M. B. Bender.—p. 577.
Cerebral Localization and Contributions of Psychosurgery and Shock Therapy. L. B. Kalinowsky.—p. 582.
Granulomatous Angiitis of Meninges in Sarcoidosis. J. S. Meyer, J. M. Foley and D. Campagna-Pinto.—p. 587.
Cardiovascular Changes Associated with Electroconvulsive Therapy in Man. M. L. Brown, P. E. Huston, H. M. Hines and G. W. Brown.—p. 601.
Cardiovascular Changes Associated with Electroconvulsive Shock in Monkeys: Cerebral Blood Flow, Blood Pressure, and Cardiac Rate Measurements Before, During, and After Electroconvulsive Shock. M. L. Brown, P. E. Huston, H. M. Hines and G. W. Brown.—p. 609.
Incidence of Alzheimer's Disease in Large Mental Hospital: Relation to Senile Psychosis and Psychosis with Cerebral Arteriosclerosis. M. A. Neumann and R. Cohn.—p. 615.

Cerebral Vascular Insufficiency and Localized Encephalopathy.—Although cerebral infarction without cerebral arterial occlusion and the reversibility of various acute manifestations of cerebral dysfunction have been explained for many years on the basis of cerebral vascular spasm, there is now considerable doubt concerning the role of spasm of the cerebral arteries in the production of localized encephalopathy. In this study attention is called to cerebral vascular insufficiency, a term that is applied to transient and reversible insufficiency of the cerebral blood flow, although damage to the brain may be permanent. Corday and his associates made electroencephalograms in the monkey after the carotid vessels were partially or completely ligated. When the blood pressure was lowered by bleeding the animal, focal electroencephalographic changes on the side of the ligation were similar to those found in hemiplegia. When the blood pressure was restored, the electroencephalographic records returned to normal. These changes were proved to be due to a drop in blood pressure rather than purely to anemia. Clinically, cerebral vascular insufficiency occurs in such conditions as hemorrhagic shock, surgical and traumatic shock, and hypotension due to sympathectomy, postural hypotension, carotid sinus stimulation, spinal anesthesia, and cardiac surgery. It can occur also as a result of surgical ligation of the carotid arteries, spontaneous thrombosis of the internal carotid artery, changes in gravitation, as in flying, and the use of antihypertensive drugs. The changes are transient if the blood pressure is restored to normal within a short period. If the blood pressure is not promptly restored in patients with cerebral arteriosclerosis or congenital anomalies, focal changes will be permanent. As in the heart in which coronary arteriosclerosis has occurred, it is important to maintain the cerebral blood pressure at normal levels, especially in the elderly patient with narrowing of cerebral arteries.

Pyretotherapy in Ophthalmoplegic Migraine.—Patrikios had reported in a previous study two cases in which unexpected elevation of the temperature resulted in rapid relief of ophthalmoplegic migraine after other therapy had failed. Then he used pyretotherapy in three other cases of ophthalmoplegic migraine with satisfactory results. In the first of these, in spite of interruption of the treatment, improvement has been maintained, and in the other two recovery was rapid and complete. Five new cases of ophthalmoplegic migraine are reported in which pyretotherapy proved effective. In his previous report the author believed the beneficial effect of fever therapy to be due to a vasomotor mechanism. He now feels that the beneficial action is the result of the general adaptation syndrome of Selye. The same mechanism may be invoked to explain the development of the ophthalmoplegic migraine itself, and would take into account the diversity and nonspecificity of its causes.

American Heart Journal, St. Louis

45:635-794 (May) 1953. **Partial Index**

*The Heart in Rheumatoid Arthritis. L. Sokoloff.—p. 635.
Risk of Fallacious Conclusions from Autopsy Data on Incidence of Diseases with Applications to Heart Disease. D. Mainland.—p. 644.
Electrocardiographic Mirror Pattern Studies: III. Mirror Pattern Cancellation in Normal and Abnormal Subjects. E. Simonson, O. H. Schmitt, R. B. Levine and J. Dahl.—p. 655.
Effect of Exercise on Electrocardiogram of Bundle Branch Block. H. Feil and B. L. Brofman.—p. 665.
Effect of Moderate and Hard Muscular Work on Spatial Electrocardiogram. N. Kimura and E. Simonson.—p. 676.
High Fidelity Electrocardiography: Further Studies Including Comparative Performance of Four Different Electrocardiographs. P. H. Langner Jr. —p. 683.
Physiologic Studies in Mitral Stenosis. A. C. Taquini, R. J. Donaldson, E. S. Ballina and others.—p. 691.
Characteristics of Right Atrial Pressure Wave Associated with Right Ventricular Hypertrophy. M. C. McCord, S. Komesu and S. G. Blount Jr.—p. 706.
Simultaneous Calibrated Recording of Displacement, Velocity, and Acceleration in Ballistocardiography. J. E. Smith and S. Bryan.—p. 715.
Effect of Induced Hyperkalemia on Normal and Abnormal Electrocardiogram. H. T. Dodge, R. P. Grant and P. W. Seavey.—p. 725.
*Increased Frequency of Acute Myocardial Infarction During Summer Months in Warm Climate: Study of 1,386 Cases from Dallas, Texas. H. E. Heyer, H. C. Teng and W. Barris.—p. 741.
Studies on Spontaneous Variations in Blood Coagulability Immediately Following Myocardial Infarction. J. L. Beaumont, H. Chevalier and J. Lenegre.—p. 756.
Heparin Treatment of Angina Pectoris. M. Port, A. Katz, E. Hellman and C. D. Enselberg.—p. 769.
Cardio-Pericardiopexy for Treatment of Coronary Artery Disease. S. Dack and A. N. Gorelik.—p. 772.

The Heart in Rheumatoid Arthritis.—This study is based on pathological material from 101 cases of rheumatoid arthritis. Although mitral stenosis is generally regarded as a consequence of rheumatic valvulitis, the significance of minor sclerotic and inflammatory changes in the heart is debatable. Pathologists may find stigmas of rheumatic inflammation in 60 to 93% of the adult population at necropsy. Three categories of rheumatic heart disease were watched for in this study: (1) frank rheumatic heart disease, such as mitral stenosis, rheumatic valvulitis, and myocarditis with formation of Ashoff bodies; (2) minor sclerosis of the valves accompanied by fibrosis of the leaflet with formation of thick-walled blood vessels; and (3) calcareous stenosis of the aortic valve. For purposes of comparison, data were obtained from consecutive necropsies performed on 1,154 persons over 19 years of age. The incidence of rheumatic heart disease was somewhat higher in the group with rheumatoid arthritis than in the general autopsy series, but it was far less than in most of the previous reports. The fact that in 66 of the 101 cases material was secured from the Armed Forces of Pathology suggests that persons who contracted rheumatic heart disease prior to the age of induction were excluded. Such military personnel, however, have a predisposition to develop rheumatic fever as the result of epidemics. Rheumatoid arthritis in a large proportion of cases is not established anatomically, because extensive dissection of the joints is not commonly performed at necropsy. If these and other limitations are recognized, the results of the present investigation suggest that in persons with rheumatoid arthritis there may be a somewhat higher incidence of heart disease that is indistinguishable from rheumatic heart disease than chance would dictate. A concept of heart disease specific to rheumatoid arthritis has been evolved recently. It is characterized by granulomatous inflammation similar to that found in the rheumatoid subcutaneous nodules. Such foci have been observed in the epicardium, adjacent myocardium, and the rings and leaflets of the mitral and aortic valves. In the present series, there was at least one case of rheumatoid nodule formation. Such frank rheumatoid heart disease appears to occur in about 1 to 3% of the cases of rheumatoid arthritis. The frequency with which evidences of healed pericarditis are found indicates that it is common in rheumatoid arthritis.

Seasonal Variation of Frequency of Acute Myocardial Infarction.—A survey was made of all cases of acute myocardial infarction seen in three Dallas hospitals during the years 1946 to 1951 inclusive. In each case the clinical record and the electrocardiograms were reviewed and whenever possible the time of onset established. Meteorological data were obtained from the Dallas weather bureau. Dallas has very hot summers, with maximum temperatures exceeding 95 F on most and 100 F on many days during July and August. The winters are relatively mild. The diagnosis of acute myocardial infarction was made in 1,666 instances, and in 1,386 cases the data appeared adequate to authenticate the diagnosis. There were 340 deaths, an over-all mortality rate (including some patients with multiple episodes) of 24.5%. Autopsy confirmation was obtained in 105 cases. Acute myocardial infarction was most frequent during July and August and least frequent during the winter months. Previous reports from northern cities concerning the seasonal variation in acute myocardial infarction indicated the incidence is lowest in the summer months and highest in the winter months. Greater frequency during the winter months has been variously ascribed to (1) the increased frequency of respiratory infection, (2) an increase in body metabolism in the colder months, and (3) the effect of vasomotor reflexes caused by cold weather. The demonstration that the greatest number of such cases in Dallas have their onset in the hot summer months suggests that other factors are probably operative here. It appears probable that the physiological adjustment that must be made to preserve a constant body temperature exerts a considerable strain on the organism and may act as an important precipitating factor of acute myocardial infarction. The humidity is relatively moderate in the Dallas area and does not appear to be an important stress factor in this region. Mild heat exhaustion is a comparatively frequent occurrence in Dallas.

American Journal of Clinical Pathology, Baltimore

23:413-518 (May) 1953. **Partial Index**

Necrotizing Granulomatosis and Angiitis of Lungs, with Massive Splenic Necrosis and Focal Thrombotic Granulomatous Glomerulonephritis. R. Fienberg.—p. 413.
Quantitative Test for Antibody-Globulin Coating Human Blood Cells, and Its Practical Applications. A. S. Wiener and E. B. Gordon.—p. 429.
Isolated Nodules of Regeneration Hyperplasia of the Liver: Problem of Their Differentiation from Neoplasm. C. F. Begg and W. H. Berry. —p. 447.
Total Serum Organic Acids: Preliminary Study. H. Davis Jr. and H. R. Jacobs.—p. 464.
Cerebrospinal Fluid Changes in Secondary Carcinoma of Meninges. L. J. McCormack, J. B. Hazard, W. J. Gardner and J. G. Klotz.—p. 470.
Determination of Protein-Bound Iodine in Plasma or Serum: Simple and Rapid Method. L. W. O'Neal and E. S. Simms.—p. 493.
Differential Mediums for Enteric Bacteria. H. Colichón.—p. 506.
Use of Triphenyl Tetrazolium in Motility Test Medium. A. T. Kelly and M. Fulton.—p. 512.
Differential Staining of Spermatozoa in Sections of Testis. J. W. Berg. —p. 513.

American Journal of Medicine, New York

14:537-650 (May) 1953

SYMPOSIUM ON DRUG ADDICTION

Drug Addiction Problem. J. M. Bobbitt.—p. 538.
Chemistry of Drugs of Addiction. E. L. May.—p. 540.
Phenomena of Tolerance. M. H. Seevers and L. A. Woods.—p. 546.
Clinical Characteristics of Addictions. H. Isbell and W. M. White. —p. 558.
Psychiatric Aspects of Drug Addiction. A. Wikler and R. W. Rasor. —p. 566.
Treatment of Drug Addiction. H. F. Fraser and J. A. Grider Jr. —p. 571.
History and Mechanism of International and National Control of Drugs of Addiction. A. L. Tennyson.—p. 578.
Psychomedical Survey of Private Outpatient Clinic in a University Hospital. B. I. Lewis.—p. 586.
*Phenobarbital Sensitivity Syndrome. T. E. McGeachy and W. E. Bloomer.—p. 600.
Allergic Purpura, Including Purpura Due to Foods, Drugs and Infections. J. F. Ackroyd.—p. 605.

Phenobarbital Sensitivity Syndrome.—The occurrence is reported of a syndrome of erythematous rash, high fever, mental confusion, and toxic damage of parenchymatous organs in two men and one woman following administration of therapeutic amounts of phenobarbital sodium. One man and the woman died, while the other man has recovered. Necropsy in the case of the woman revealed small hemorrhages in the tracheobronchial tree, skin, kidneys, stomach, and oral cavity. The viscera were jaundiced, the liver was fatty, and the spleen was congested. On microscopic examination the liver showed a severe diffuse destructive process. Cells in all stages of necrosis were observed. The similarity between the authors' three cases and others reported in the literature was remarkable. Similar reactions to other barbiturates are extremely rare. It may be of some significance that phenobarbital (phenylethyl barbituric acid) is the only commonly used barbiturate containing a phenyl group. Conceivably, some abnormality in the metabolism of phenobarbital in sensitive persons might liberate a phenol derivative capable of producing a diffuse cellular damage in the parenchymatous organs. The questionable response of the woman to *p*-aminobenzoic acid and of the surviving man to tripelennamine (Pyribenzamine) would seem neither to establish nor to refute an allergic hypothesis. The surviving patient seemed to improve when he was given 1 gm. of procaine hydrochloride intravenously in 1,000 cc. of isotonic sodium chloride solution. Procaine was given on the fourth and fifth hospital day, at which time his fever began to fall by lysis, his rash to fade and the mental symptoms to regress. Three months later temperature elevation, rash and swollen painful joints again developed, and he was again given tripelennamine for two weeks. Administration of the drug was then discontinued, and the patient began to improve and was well one week later. As an experiment he was again given tripelennamine; after three doses, his fever and rash recurred but promptly disappeared when the drug was omitted. The developed sensitivity to tripelennamine with features similar to the original phenobarbital reaction would suggest that the original response was allergic in character. Similar reactions to phenobarbital may be expected because of the wide clinical use of this drug. Management should entail careful attention to the hepatic function. In view of the bleeding tendency observed in these patients, hypoprothrombinemia may be a factor and, if present, vitamin K_1 oxide or a similar substance may be of value. Intravenous administration of procaine hydrochloride is indicated. Corticotropin and cortisone may be tried.

American Journal of Obstetrics & Gynecology, St. Louis

65:935-1166 (May) 1953. **Partial Index**

Changing Indications for Cesarean Section: Analysis of 15 Years' Experience at Flushing Hospital. G. Schaefer and F. Carpenter.—p. 935.
Study of Management of Pregnancies Subsequent to Cesarean Section. D. H. Eames Jr.—p. 944.
Study of Cesarean Section at Evanston Hospital from 1930 to 1950. H. J. Zettleman and V. M. Bowers.—p. 953.
Constriction Ring Dystocia. C. Fields.—p. 960.
Use of Cation-Anion Exchange Resin in Control of Edema and Excessive Weight Gain in Prenatal Patients. J. P. Baker, J. J. Lehman, H. A. Claiborne and W. S. Baker Jr.—p. 969.
Observations on Renal Tubular Reabsorption of Uric Acid: I. Normal Pregnancy and Abnormal Pregnancy With and Without Pre-Eclampsia. J. Seitchik.—p. 981.
Problem of Postmaturity. R. E. Lartz.—p. 986.
Uterine Arteriovenous Fistula. J. A. Gaines and J. C. Greenwald.—p. 997.
Study of Fetal Distress, Its Interpretation and Significance. J. O. McCall Jr. and R. W. Fulsher.—p. 1006.
*Results of Nisentil in 1,000 Obstetrical Cases. W. M. Kane.—p. 1020.
Trilene, an Adjunct to Obstetrical Anesthesia and Analgesia. C. E. Flowers Jr.—p. 1027.
Defective Blood Coagulation Associated with Premature Separation of Placenta. M. J. Goodfriend, I. A. Shey and H. L. Siegelbaum.—p. 1034.
Sporadic and Epidemic Puerperal Breast Infections: Contrast in Morbid Anatomy and Clinical Signs. G. F. Gibberd.—p. 1038.
Tace (Chlorotrianisene), a New Estrogen for Inhibition of Lactation. R. O. Nulsen, W. B. Carmon and H. O. Hendrick.—p. 1048.
Clinical Evaluation of Methylergonovine Tartrate (Semisynthetic Ergonovine). A. B. Crunden Jr., H. V. Coes Jr. and J. A. Fleming. —p. 1052.
Penicillin Administered Vaginally and Orally: Comparison of Plasma Concentrations and Urinary Recoveries. A. Rubin and W. P. Boger. —p. 1057.
Furacin Vaginal Suppositories: Their Use with Radiation Therapy for Malignant Pelvic Neoplasms. J. Schwartz and V. Nardiello.—p. 1069.
Relative Efficiency of Diagnostic Techniques in Detection of Early Cervical Cancer: Comparative Study with Survey of 1,000 Normal Women. S. B. Gusberg.—p. 1073.
Incidence and Anatomical Distribution of Basal-Cell Hyperactivity and Its Relationship to Carcinoma of Cervix Uteri. G. H. Guin.—p. 1081.

Use of Nisentil in 1,000 Obstetrical Cases.—Nisentil (1,3-dimethyl-4-phenyl-4-4-propionoxy-piperidine) hydrochloride, which has chemical structure similar to that of meperidine (Demerol), was used by Kane in 1,000 obstetrical cases. It was found to give satisfactory analgesia in 98.1% of the deliveries.

Nisentil (60 mg.) in combination with scopolamine (1/150 grain) injected subcutaneously was found to give the best results. Administration of Nisentil may be repeated safely in proportion to subjective response. Side-effects from the drug were observed in eight mothers (0.8%), who complained of dizziness. There was no vomiting. Fetal respiratory depression was present in 4.9% of the cases. The over-all fetal mortality was 1.7%, but none of these deaths was attributable to use of Nisentil. Nisentil as a valuable drug for obstetric analgesia because of its rapid onset of action, relatively short period of maximal effect, and its minimal depression of respiration in the infant.

American Journal of Ophthalmology, Chicago

36:599-764 (May) 1953

Newly Defined Vitreous Syndrome Following Cataract Surgery: Interpreted According to Recent Concepts of Structure of Vitreous. S. R. Irvine.—p. 599.

Magnet Extraction of Intraocular Foreign Bodies by Anterior and Posterior Routes: Survey of 150 Cases. J. S. Shipman, J. H. Delaney and R. H. Seely.—p. 620.

*Scleral Resection Operation for Retinal Detachment. D. K. Pischel and P. C. Kronfeld.—p. 629.

Narrow-Angle Glaucoma: Gonioscopic Observation in Two Cases Provoked by Darkroom Test. M. G. Ross.—p. 640.

Anisophoria, Anisometropia, and Final Prescription. J. E. Lebensohn. —p. 643.

Residual Accommodation Under Homatropine-Cocaine Cycloplegia. P. M. Brickley and K. N. Ogle.—p. 649.

*Crush Syndrome in Ophthalmology. P. Weinstein.—p. 660.

Ocular Manifestations of Gargoylism. E. V. Kenneally.—p. 663.

*Ocular Complications in Brucellosis. M. P. Solanes, J. Heatley, F. Arenas and G. B. Ibarra.—p. 675.

Effect of Compound F Upon Horse-Serum Uveitis in Rabbit Eye. A. W. Vogel and I. H. Leopold.—p. 690.

Reconstruction of Lower Fornix by Pedicle Graft from Skin of Upper Lid. K. N. Shukla.—p. 694.

New Proposal for Surgical Treatment of Anterior Synechia. T. Sato. —p. 698.

Scleral Resection for Retinal Detachment.—Pischel and Kronfeld point out that in the ordinary case of recent retinal detachment, the break-closing operation is highly effective. However, in a number of eyes with fresh idiopathic detachments and in a larger number of eyes in which one or several diathermy operations have been performed without success, the mechanical conditions are such that closure of all existing breaks by electrocoagulation of the underlying choroid, followed by drainage of the subretinal fluid, is either inapplicable or inadequate. Lindner realized in 1933 that in cases of detachments with fixed retinal folds and strands adherent to the retina in the vitreous and in cases in which the retina assumed a funnel shape at a very early stage, the principle embodied in the globe-shortening operation would be applicable. Lindner developed scleral resection from a rather crude operation to a reasonably safe procedure. He epitomized the principle of the globe-shortening operation as a race between the shrinking vitreous and the decrease in the size of the eye. Pischel and Kronfeld review their experiences with scleral resections in 150 eyes with retinal detachment. There were 46 cures, 14 improvements, and 90 failures. In the cases in which cure was obtained, it was possible in almost every instance to determine the outstanding pathological feature which was alleviated or corrected by the scleral resection. In many of the failures, the visibility was not good enough or the fundus picture clear enough to correlate the failure of the operation with any specific feature of the pathogenetic mechanism. Among the patients in whom treatment failed was a small group with advanced diabetic retinopathy with bizarre detachments of the retina and strands in the vitreous that could be readily seen with the slitlamp and often with the ophthalmoscope. The other usual features of diabetic retinopathy were also present, such as masses of hard exudate, retinal hemorrhages, and small aneurysms. Scleral resection was done in the region where it seemed to have the best chance of slacking the tension on the vitreous strands. It was undertaken with the hope that the progress of the disease might be temporarily halted, but the results were poor. New and large retinal or vitreous hemorrhages developed immediately after the operation, and the eyes were either worse or no better than before the intervention. The authors conclude that the scleral resection operation is effective in certain specific situations.

Crush Syndrome in Ophthalmology.—During World War II in some persons who had been covered by debris from buildings during air raids and appeared to be uninjured at the time renal symptoms known as "crush" syndrome later developed. Trueta and others compressed the extremities of experimental animals by elastic tourniquets and observed that, several hours after the tourniquet had been removed, the distal part of the femoral artery remained contracted, that the renal arteries were also spastically contracted, and that the renal cortex appeared to be ischemic. Alterations of the retina are also found as belated sequelae of injury, such as traumatic edema and traumatic angiopathy. Traumatic edema may follow contusions of the globe and is associated with a distinct, although transitory, opacity of the retina. Traumatic retinal angiopathy, including retinitis stellata, usually follows injury of the skull and chest. Considering Trueta's explanation that crushing injuries may be followed by distant neurovascular effects, the cause of the fundus changes becomes more apparent. The subjects of the present study were persons with apoplexy who had eyeground hemorrhages. Autopsies were performed within 24 hours after death. Weinstein regards cerebral hemorrhages resulting from a crushing injury to the brain and the retinal hemorrhages as the distant neurovascular effect. He attempts to explain such angiospastic-atonic conditions as Berlin's retinal edema, Purtscher's retinal lesions, and traumatic glaucoma by applying to the ocular lesions the deductions made by Trueta on the crush syndrome, when he described renal cortical ischemia as a distant effect of trauma. The analogy between Trueta's renal and Weinstein's ocular findings was verified by autopsy in four cases of apoplexy and by correlation of the postmortem findings with eyeground findings before death.

Ocular Complications in Brucellosis.—Brucellosis like syphilis and tuberculosis may produce manifestations in any system of the human organism. The authors direct attention of ophthalmologists to brucellosis as a cause of eye disease by presenting the results of a survey by the department of medical research on brucellosis of the General Hospital of Mexico City, and the antibrucellar center of Torreón, Coahuila, Mexico. Most published papers on the ocular complications of brucellosis failed to establish the diagnosis of the systemic infection with absolute certainty. Brucella organisms were seldom isolated from suspected cases, and not rarely the diagnosis of the general condition was based on the existence of a positive cutaneous allergy, which is only proof of a previous brucellar infection. The authors thought that investigation of the incidence of ophthalmopathy in patients with established brucellosis is a more adequate method of studying the ocular aspects of the disease. Their studies were made on 413 patients. A positive blood culture was obtained in 223, an agglutination higher than 1:160 (Wright) was present in 293, and a positive cutaneous allergy test was obtained from 348. Ophthalmopathy was observed in 12 and neuro-ophthalmologic disorders in 48, a total of 60 or 14.25%. The relationship between the ophthalmic disturbance and brucellosis seemed undoubted in 54, probable in 5, and questionable in 1 case. In Mexico, where the human infection is almost always due to B. melitensis, purely ophthalmologic manifestations of brucellosis are rarely observed, while the disorders of the visual neurological system (especially the optic nerve) are observed rather frequently. Brucellosis may involve any ocular structure, producing atypical pictures. Involvement of the optic nerve is quite characteristic; there is perineuritis with slight changes in the visual fields and frequently unaffected central vision; normal fundus (retrobulbar optic neuritis); and congestion of the disk or true papillitis. The changes frequently regress to normal, but may lead in a few instances to a simple or postneuritic atrophy of the disk. In any endemic area, as that of Mexico, any person with the previously mentioned optic nerve disorders should be studied for the presence of brucellosis.

American Journal of Orthopsychiatry, New York

23:223-444 (April) 1953. Partial Index

Mental Health Education and Community Psychiatry. J. V. Coleman. —p. 265.
Place of Education and Psychotherapy in Mental Health. P. B. Neubauer. —p. 280.
Group Therapy with Adults. J. Mann.—p. 332.
An Application of Group Therapy to Intake Process. H. B. Peck.—p. 338.

American Journal of Physiology, Washington

172:515-772 (March) 1953

Hypothalamic Involvement in Pituitary-Adrenocortical Response to Stress Stimuli. R. W. Porter.—p. 515.
Inhibitory Effects of Aminopterin on Decidual Development. J. T. Velardo and F. L. Hisaw.—p. 535.
Effect of Ovarian Hormones on Contractile Energy of Rat Uterus. T. C. West, D. M. Jones and T. A. Loomis.—p. 541.
Effects of Total Body Irradiation Upon Lipoprotein Metabolism. J. E. Hewitt, T. L. Hayes, J. W. Gofman and others.—p. 579.
Electrical Resistance in Resting and Secreting Stomach. W. S. Rehm. —p. 689.
Influence of Hypoxia on Renal Circulation and on Excretion of Electrolytes and Water. E. E. Selkurt.—p. 700.
Erythrocyte Life Span in Small Animals: Comparison of Two Methods Employing Radioiron. E. L. Burwell, B. A. Brickley and C. A. Finch. —p. 718.
Comparative Properties of Purified Human and Bovine Prothrombin. W. H. Seegers and N. Alkjaersig.—p. 731.
Effect of Carbon Dioxide Excess on Contractile Force of Heart, In Situ. K. J. Boniface and J. M. Brown.—p. 752.

American Journal of Psychiatry, New York

109:801-880 (May) 1953. Partial Index

Responsibility of Public Mental Hospitals in Psychiatric Research. J. S. Gottlieb.—p. 801.
Neuropathologic Lesions Following Lobotomy: Study of 15 Cases of Bilateral Prefrontal Lobotomy. N. Raskin, G. Strassman and C. C. Van Winkle.—p. 808.
State-Subsidized Care and Treatment of Mentally Ill Children in Massachusetts. T. P. Krush.—p. 817.
Reactions to Music of Autistic (Schizophrenic) Children. A. C. Sherwin. —p. 823.
Study of Electroencephalogram as Related to Personality Structure in Group of Inmates of State Penitentiary. S. Levy and M. Kennard. —p. 832.
*Premenstrual Tension: EEG, Hormonal, and Psychiatric Evaluation. W. M. Lamb, G. A. Ulett, W. H. Masters and D. W. Robinson. —p. 840.
Emotional Aspects of Rehabilitation. M. Grossman.—p. 849.
Intravenous Methamphetamine—Adjuvant to Psychotherapy. M. Straker. —p. 853.
Effect of Current Educational Programs on Personality Development. E. O. Melby.—p. 856.
Group Differences in Electrocardiographic Response. P. Kivisto.—p. 858.

109:881-960 (June) 1953

Dormison, New Type of Hypnotic: Its Therapeutic Use in Psychiatric Patients. P. R. A. May and F. G. Ebaugh.—p. 881.
Diagnostic Use of Amobarbital Sodium ("Amytal Sodium") in Brain Disease. E. A. Weinstein, R. L. Kahn, L. A. Sugarman and L. Linn. —p. 889.
Report on Use of Succinyl Choline Dichloride (Curare-Like Drug) in Electroconvulsive Therapy. B. F. Moss Jr., C. H. Thigpen and W. P. Robison.—p. 895.
Treatment of Tuberculous Patients with Electroshock Therapy. J. H. McClellan and A. Schwartz.—p. 899.
Human Life Cycle and Its Interruptions: Psychologic Hypothesis. Studies in Gerontologic Human Relations. M. E. Linden and D. Courtney. —p. 906.
Psychotherapy of Aged Persons: II. Utilization and Effectiveness of "Brief" Therapy. A. I. Goldfarb and H. Turner.—p. 916.
Measurement of Changing Psychopathology with Minnesota Multiphasic Personality Inventory. L. J. West.—p. 922.
Frontal Bone Hyperostosis in Psychoses: Clinical Study. J. Notkin. —p. 929.

Premenstrual Tension.—About 40% of women at some time suffer from premenstrual tension. When severe, the symptoms may include depression, irritability, temper outbursts, easy fatigability, sleeplessness, change in energy level, altered sex drive, backache, headache, nausea, vomiting, abdominal fullness, weight gain, aching of thighs, tenderness and swelling of breasts, and pedal edema. Psychiatrists refer to the condition as "menstrual psychosis," because depressive psychoses have been known to be precipitated or aggravated at this period in the hormonal cycle. Attempts have been made to explain the syndrome as an endocrinological imbalance, particularly of the estrogen-progesterone level. Therapy based on this theory, however, has been unrewarding. Symptoms of premenstrual tension cannot be accounted for on the basis of generalized water retention alone. Little attention has been directed to the psychodynamic aspects of premenstrual tension. It was felt that some correlations might be established by simultaneous physiologic and psychiatric observations on a group of persons with premenstrual tension and on a group of controls. A questionnaire study was made of 127 student nurses, ranging in age from 18 to 35. From this group 10 subjects were selected for careful study. Five were controls and the other five had symptoms of premenstrual tension. The study covered at least two menstrual cycles. Pelvic examination and basal metabolic rate determinations were done. Vaginal smears were made daily during the first month of study and for three to five days during the second month to include the estimated day of ovulation. These smears were obtained by the subjects themselves. Urinary gonadotropin titers were measured for three days at the time of ovulation. Eight interviews, each of approximately one hour's duration, were scheduled so that the subjects were seen in various phases of the menstrual cycle. Electroencephalograms were recorded in the 24 hours after bleeding, at the time of ovulation (within 24 hours), and in the premenstrual period (3 days and 1 day before bleeding). There was no indication that the behavioral manifestations of premenstrual tension reflect alterations in the cerebral neurophysiology. Endocrine activity was within normal limits in all subjects, with no demonstrable distinction between subjects with premenstrual tension and controls. There was no evidence to substantiate the theory of psychogenic etiology for premenstrual tension; however, there were some differences in the behavior other than the premenstrual manifestations differentiating the two groups. The subjects with premenstrual tension showed greater emotional instability throughout their cycles, and in general they were less assertive.

American Journal of Psychotherapy, New York

7:211-414 (April) 1953. Partial Index

Psychobiologic Therapy. W. Muncie.—p. 225.
Living by Proxy: Frequent Form of Transference and Mental Symbiosis. J. A. M. Meerloo.—p. 241.
Analysis and Follow-Up of Patients with Psychiatric Disorders. M. M. Warne, A. H. Canter and B. Wiznia.—p. 278.
Analysis of Response to Follow-Up Letters to Patients Who Fail to Keep Mental Hygiene Clinic Appointments. J. C. Coble, L. E. Conner and W. V. Lockwood.—p. 289.

American Journal of Public Health, New York

43:381-522 (April) 1953. Partial Index

Medical Care Bookshelf. S. J. Axelrod.—p. 381.
*Mass Immunization of Dogs Against Rabies Its Influence on Rabies Epizootic in St. Louis. L. E. Frederickson, J. C. Willett, J. E. Smith and E. R. Price.—p. 399.
*Laboratory Diagnosis of Leptospirosis. W. S. Gochenour Jr., R. H. Yager, P. W. Wetmore and J. A. Hightower.—p. 405.
Current Problems in Field of Leptospirosis. R. H. Yager and W. S. Gochenour Jr.—p. 411.
Immunological Studies of Poliomyelitis (Lansing) and Rabies Viruses. A. Milzer and F. Nicholson.—p. 415.
Weight Control Program at Local Level. J. S. Llewellyn, E. Bennett, M. M. Hurley and M. Neff.—p. 433.
Epilepsy Program in Public Health. R. Baldwin, E. Davens and V. G. Harris.—p. 452.

Mass Immunization of Dogs Against Rabies.—Fredrickson and his associates state that since 1921 rabies has become a complex public health problem in St. Louis. Six rabies epizootic outbreaks have occurred during that time, and each outbreak has been more serious and of longer duration than the previous one. Since 1936 there have been 1,677 reported cases of animal rabies, almost all in dogs. All cases of rabies referred to in this report were confirmed by laboratory examination. A sudden increase in rabies late in 1950 led to a quarantine proclamation requiring every dog to be restrained by a leash when on the public streets. Regulations for redemption of dogs from the city pound required that all dogs be released to a veterinarian for a prophylactic rabies inoculation. Despite these regulations, the number of rabid dogs continued to increase. The greatest number of rabid dogs came from slum districts. A public health veterinarian made the following recommendations: (1) mass immunization clinics; (2) an educational program for dog owners; (3) turning over of the stray dog control program to the health division; and (4) immediate action for an ordinance requiring annual vaccination for all dogs. Immediate steps were taken to organize the rabies inoculation campaign. Eighteen clinics were opened on May 23 and were operated from 4 to 8 p.m. for seven days through June 1; 38,000 dogs were vaccinated at these clinics. Approximately 20,000 additional dogs were vaccinated in the private offices of veterinarians. This intensified vaccination program, in which a high percentage of the canine population was inoculated in a short period of time, proved of far greater value than sporadic inoculation of small numbers of dogs over an extended period in the same metropolitan area.

Laboratory Diagnosis of Leptospirosis.—Although the demand for leptospiral diagnostic laboratory services is constantly increasing, existing facilities are inadequate. Studies conducted on leptospirosis in Puerto Rico afforded an opportunity to evaluate laboratory techniques and to determine their suitability for employment as routine diagnostic laboratory procedures. Seventy-nine bacteriologically proved human cases of acute leptospirosis comprise the series on which this report is based. The authors believe that laboratory confirmation of the diagnosis of acute leptospirosis may be most readily and reliably made by direct blood culture and serologic examination by complement fixation employing sonic-vibrated leptospiral antigens. Blood cultures should be made during the initial febrile stage of the illness. Serial serum specimens, the first obtained early in the disease, are essential for demonstration of the diagnostic rise in antibody level. Both procedures *recommended are within the capabilities of the ordinary diagnostic* laboratory, provided diagnostic complement-fixing antigens are available. Identification of leptospiral strains requires the employment of antibody absorption techniques and is best accomplished at a leptospiral reference laboratory.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

69:723-906 (May) 1953

Growth, Differentiation, and Disease: Caldwell Lecture, 1952. E. B. D. Neuhauser.—p. 723.

Unusual Case of Intrathoracic Fibroma Associated with Pulmonary Hypertrophic Osteoarthropathy. O. Deutschberger, A. A. Maglione and J. J. Gill.—p. 738.

*Visualization of Common Duct During Cholecystography: Its Significance. M. D. Sachs.—p. 745.

Hemangio-Endothelioma of Pelvis: Follow-Up of Previously Reported Case. D. S. Dann and S. Rubin.—p. 769.

Dissection of Neck After Intensive Irradiation to Neck: Its Feasibility in Management of Cervical Metastasis from Oral Cancer. S. G. Castigliano and C. J. Rominger.—p. 771.

Radium in Treatment of Cancer of Tongue. T. P. Eberhard.—p. 789.

Study of Cervical Lymph Node Metastasis in Squamous Cell Carcinoma of *Oral Cavity: With Notes on Cleared and Freshly Dissected Specimens.* H. P. Royster, E. D. Moyers Jr., R. B. Williams and R. C. Horn Jr.—p. 792.

Roentgenologic Diagnosis and Follow-Up of Hypopharyngeal Cancer. S. Welin.—p. 796.

Parametrial Injection of Colloidal Gold (Au^{198}) in Monkey. J. F. Nolan, E. G. Jones and R. H. Neil.—p. 805.

Irradiation of Cancer of Uterine Cervix with Radioactive Cobalt 60 in Guided Aluminum Needles and in Plastic Threads. J. L. Morton, A. C. Barnes, C. H. Hendricks and G. W. Callendine Jr.—p. 813.

Effect of Dose Rate on LD_{50} of Mice Exposed to Gamma Radiation from Cobalt 60 Sources. J. F. Thomson and W. W. Tourtellote.—p. 826.

Studies on Effects of Continuous Exposure of Animals to Gamma Radiation from Cobalt 60 Plane Sources. J. F. Thomson, W. W. Tourtellotte, M. S. Carttar and others.—p. 830.

Nitrogen Balance in Malignant Disease. N. Bolker.—p. 839.

Description of Cone *with Movable Grid for Grid Therapy.* L. E. Jacobson.—p. 849.

Abdominal Compression: All-Important Factor in Excretory Urography. J. W. Grossman and B. C. Nalle Jr.—p. 851.

Cassette Visualizer with Transparent Table Top. J. L. Marks and D. J. Peik.—p. 853.

Visualization of Common Duct During Cholecystography.—Recent experience *with evacuation* studies during cholecystography confirmed in some instances by operative cholangiography has permitted the diagnosis to be made preoperatively, thereby enabling the physician to plan the necessary medical or surgical therapy. Cholecystography should consist of multiple films taken at approximately 8 minute intervals during the first 30 minutes following the fatty meal. Additional films at varying time intervals, as determined by the roentgenologist, should be taken if there is evidence of abnormal biliary function. In conjunction with this technique, prostigmine given just prior to the fatty meal, aids in the visualization of the common duct by its direct constrictive action on the smooth muscle of the sphincter of Oddi. Only in this manner can such findings as dysfunction or fibrosis of the sphincter of Oddi or compression of the common duct by pancreatitis be diagnosed by cholecystography.

American Journal of Surgery, New York

85:589-710 (May) 1953. **Partial Index**

Consideration of Some Non-Malignant Dermatologic Conditions. W. R. Nickel.—p. 591.

Submandibular-Notch Sliding Osteotomy for Surgical Correction of Mandibular Retrusion, New Technic: Preliminary Report. A. E. Smith and M. Robinson.—p. 606.

Infantile Cortical Hyperostosis: New Syndrome. C. Litton.—p. 626.

Double Pin Fixation in Face and Jaw Fractures. J. W. Gerrie.—p. 629.

Problem of Management of Premaxilla and Prolabium in Cleft Palate Patients. H. A. Ecker.—p. 633.

Experience with Pharyngeal Flap Operation. M. K. Ruch.—p. 636.

Evaluation of Cleft Palate Surgery. B. F. Edwards.—p. 638.

*Sympathectomy in Chronic Occlusive Arterial Disease. W. G. Knox and H. Parsons.—p. 642.

Arterial Embolectomy: Report of Successful Aortic, Femoral and Popliteal Embolectomies. W. R. Wilkinson.—p. 648.

Venous Thrombosis: The Problem and its Management. A. J. D'Alessandro.—p. 632.

*Fatal Reaction Following Intravenous 10 Per Cent Dextrose. J. M. O'Hare, M. W. Shapiro and F. V. Creeden.—p. 658.

Hip Nailing in Patients of 80 Years or Older: Experiences in 104 Consecutive Personal Cases. G. E. Van Demark and R. E. Van Demark.—p. 664.

Unrecognized Leukemia Simulating Apparent Surgical Conditions. L. E. Schottenfeld and D. Diamond.—p. 669.

Anesthesia for Intracranial Surgery. A. I. Rosenthal.—p. 673.

Retrocaval Ureter. S. L. Grossman and J. U. Fehr.—p. 679.

Vaginal Hysterectomy: Description of its Advantages, Technic and Review of 129 Cases. A. A. Levi.—p. 683.

Neoplasms of Small Bowel. H. Rosenfeld and J. Brinkman.—p. 691.

Sympathectomy in Occlusive Arterial Disease.—Earlier reports (beginning in 1935) on sympathectomy in peripheral vascular sclerosis were concerned chiefly with patients with advanced disease. The purpose of the operation was to promote healing of an amputation stump or to arrest progressive tissue necrosis. Recently surgeons have emphasized the value of earlier operation for these patients before necrosis of any great extent occurred, either to prolong the usefulness of the limb or in the treatment of intermittent claudication. Knox and Parsons present observations on 32 patients with various stages of peripheral arteriosclerosis treated by lumbar sympathectomy in the five year period ending in December, 1951. There were no operative deaths. Despite the use of a variety of diagnostic and prognostic tests, there was no infallible procedure or combination of procedures that accurately predicted the result of sympathectomy. Arteriography and plethysmography were the most helpful. Sympathectomy is of value in the majority of patients with symptomatic peripheral sclerosis, particularly in persons in whom tests indicate some residual vasomotor activity. The poor results in patients with tissue necrosis were *emphasized, not to condemn the operation in this group* but to urge earlier intervention. Earlier intervention is particularly desirable in patients with claudication as their main complaint, since it is in this group that best results were obtained.

Fatal Reaction Following Intravenous Administration of Dextrose Solution.—An 18-year-old woman had had incapacitating asthmatic attacks for the previous four summers. She was hospitalized because of abdominal pain for two days and no bowel movements for one week. Abdominal exploration and appendectomy was done on the fourth day. On the afternoon of the day of operation, the patient was receiving 2,000 cc. of fluid intravenously. The second 1,000 cc. of 10% dextrose had just been added when she had a chill. Her *temperature rose immediately to 106 F, with* a blood pressure of 60/0. The remaining portion of the intravenous fluid was sent to the laboratory for examination. On the following day a medical consultant made a diagnosis of probable streptococcic septicemia, with acute adrenal insufficiency and bilateral bronchopneumonia. The patient's condition did not improve, and on the morning of the third postoperative day the blood pressure gradually dropped in spite of transfusion. The temperature rose to 107 F, oliguria developed, and the pulse disappeared. The patient died 64 hours after the administration of the suspected intravenous fluid. Culture of heart blood and of the spleen grew Aerobacter aerogenes. The most important pathological changes were those in the lungs and consisted of an allergic type of bronchiolitis and bronchitis with secondary widespread atelectasis. There were also widespread focal areas of hemorrhage and foci of infarction of the myocardium and the liver, probably best explained on the basis of anoxia. The kidneys showed early lower nephron nephrosis. The mechanism of death was thought to be respiratory failure due to anoxia secondary to the allergic bronchitis and bronchiolitis, with resultant widespread atelectasis. The authors assume that the organism A. aerogenes was in the bottle of the solution before being given to the patient and that it was responsible for the generalized anaphylactic picture.

Am. J. Syphilis, Gonorrhea and Ven. Dis. St. Louis

37:101-200 (March) 1953

Studies of Treponema Pallidum Immobilization (TPI) Test: I. Effect of Increased Sodium Thioglycollate and Complement. J. Portnoy, A. Harris and S. Olansky.—p. 101.
Id.: II. Evaluation of Quantitative Control Serums. A. Harris, J. Portnoy, V. H. Falcone and S. Olansky.—p. 106.
Modification of Nelson Treponemal Sustaining Medium for Use in Treponema Pallidum Immobilization Test. V. R. Saurino.—p. 112.
Technical Contribution to Treponemal Immobilization Test. P. Durel, L. Borel and A. Sausse.—p. 128.
Study of Patients with Negative Kahn Standard Tests and Reactive VDRL Tests for Syphilis. S. Olansky, C. D. Bowdoin, A. Harris and D. S. Rambo.—p. 134.
Isolation and Purification of Protein Antigen of Reiter Treponema: Study of Its Serologic Reactions. G. D'Alessandro and L. Dardanoni. —p. 137.
Public Health Control of Syphilis and Yaws (Frambesia Tropica), with Special Reference to International WHO/UNICEF Assisted Program in Indonesia. C. M. Hasselmann.—p. 151.
Case of Gumma of Brain with Hypothalamic Symptoms. N. Raskin. —p. 156.
Progressive Bulbar Palsy Due to Syphilis: Case Report. R. E. Cook. —p. 161.
Chloromycetin Treatment of Gonorrhea: Evaluation of Single Oral Dose Administered to Patients with Acute Gonorrheal Urethritis. C. D. Barrett Jr. and M. E. Burton.—p. 165.
Lymphogranuloma Inguinale Complicated by Carcinoma. B. H. White and J. M. Miller.—p. 177.

American Review of Tuberculosis, New York

67:553-706 (May) 1953

*Effect of Streptomycin on Emergence of Bacterial Resistance to Isoniazid. United States Public Health Service Cooperative Investigation. —p. 553.
Pulmonary Function in Pregnancy: I. Serial Observations in Normal Women. D. W. Cugell, N. R. Frank, E. A. Gaensler and T. L. Badger.—p. 568.
*Comparative Study of Effectiveness of Laryngeal Swabs and Gastric Aspiration for Detection of M. Tuberculosis in Chest Clinic Patients. A. D. Chaves, L. R. Peizer and D. Widelock.—p. 598.
Roentgenographic Classification of Tuberculous Lesions of Kidney. J. K. Lattimer.—p. 604.
Tuberculous Meningitis in Adult: Review of 60 Consecutive Streptomycin-Treated Cases. E. A. Riley.—p. 613.
Toxic Lipid Component of Tubercle Bacillus ("Cord Factor"): I. Isolation from Petroleum Ether Extracts of Young Bacterial Cultures. H. Bloch, E. Sorkin and H. Erlenmeyer.—p. 629.
Further Observations on Pharmacology of Isoniazid. B. Rubin and J. C. Burke.—p. 644.
Long-Term Toxicity and Metabolic Effects of Isoniazid in Adults. E. W. Mullin, K. W. Wright and P. A. Bunn.—p. 652.
Specificity of Hemagglutinin Adsorption Technique in Serologic Study of Tuberculosis. W. L. Gaby, J. Black and A. Bondi Jr.—p. 657.

Effect of Streptomycin on Bacterial Resistance to Isoniazid.—Preliminary bacteriological results are presented from a large-scale clinical trial on 150 tuberculous patients treated for 28 weeks with isoniazid alone, isoniazid combined with streptomycin, and streptomycin combined with *p*-aminosalicylic acid. The sputum of a high proportion of the patients became bacteriologically negative with all three treatment regimens, isoniazid with streptomycin giving the highest number and isoniazid alone the least. The absolute percentage of patients whose sputum became negative apparently depended on such factors as the severity of the disease and previous antimicrobial treatment. The presence of cavities tends to reduce the chances of a patient's having negative sputum after a course of isoniazid therapy. Almost all cultures of sputum that was still positive after 28 weeks of treatment showed some resistance to isoniazid when it had been the only drug administered; nearly all showed resistance of some degree to both streptomycin and isoniazid when both were used; and all cultures were at least moderately resistant to streptomycin when both streptomycin and *p*-aminosalicylic acid were used. Thus, all cultures positive for Mycobacterium tuberculosis obtained after 28 weeks of treatment with any of these drug combinations contained tubercle bacilli that were to some degree more resistant to the particular drugs (excluding *p*-aminosalicylic acid) to which they had been exposed. In another and more critical respect the three regimens proved to be unequal. Tubercle bacilli were detected after 28 weeks of treatment in the cultures of one-half of the isoniazid-treated patients, in one-third of the patients treated with streptomycin and *p*-aminosalicylic acid and in one-fourth of the patients treated with streptomycin and isoniazid. Thus, while all positive cultures of patients treated with any of the three regimens contained organisms resistant to the drugs given, substantially fewer patients continued to have cultures positive for tubercle bacilli after treatment with the combination of streptomycin and isoniazid. The regimen that offers the greatest probability of the sputums becoming negative provides also almost certain development of resistance to both streptomycin and isoniazid if the sputum has not become negative by the end of the course of therapy. The other two regimens that offer less chance of sputum conversion will produce bacilli resistant to only one of the potent drugs, leaving either streptomycin or isoniazid for subsequent use.

Laryngeal Swabs for Culture of Mycobacterium Tuberculosis.—Two laryngeal swabs were taken concomitantly with an aspiration of gastric contents in 1,418 patients in chest clinics operated by the Bureau of Tuberculosis of the New York City Health Department. Cultures for Mycobacterium tuberculosis were prepared 24 hours later. Of the 1,418 patients, 207 (almost 15%) had cultures positive for Myco. tuberculosis from the gastric contents, from the laryngeal swabs, or from both sources. Of these, 187 (90%) showed growth from the gastric contents, and 135 (65%) from the swabs. Thus, two laryngeal swabs taken at the same time proved to be approximately 72% as effective as a single gastric aspiration for the detection of Myco. tuberculosis. In spite of the conveniences of the swab technique in the clinic, gastric aspiration remains the method of choice for the detection of Myco. tuberculosis in patients unable to produce an adequate sputum specimen. The laryngeal swab technique is worthy of adoption as an additional diagnostic tool for the bacteriological diagnosis of tuberculosis in ambulatory patients to be used when gastric aspiration cannot be readily performed.

Anesthesiology, Philadelphia

14:215-320 (May) 1953

*Intravenous Use of Thiophanium Derivative (Arfonad®—R02-2222) for Production of Flexible and Rapidly Reversible Hypotension During Surgery. M. J. Nicholson, S. J. Sarnoff and J. P. Crehan.—p. 215.
Postanesthetic Hypotension Following Cyclopropane: Its Relationship to Hypercapnia. J. J. Buckley, F. H. Van Bergen, A. B. Dobkin and others.—p. 226.
Placental Transmission of D-Tubocurarine Chloride from Maternal to Fetal Circulation in Dogs. C. B. Pittinger and L. E. Morris.—p. 238.
Effects of Depth of Anesthesia on Behavior of Peripheral Vascular Bed. S. G. Hershey, B. W. Zweifach and E. A. Rovenstine.—p. 245.
An Evaluation of Use of Thiopental and Decamethonium Bromide for Rapid Endotracheal Intubation. E. Colon-Yordan, T. N. Mackrell and H. ,H. Stone.—p. 255.
Comparative Qualities of Three New Local Anesthetic Drugs: Xylocaine®, Cyclaine®, and Pravocaine®. O. B. Crawford.—p. 278.
Intravenous Avertin® Anesthesia. C. S. Dwyer, W. G. Strout and P. B. Thomas.—p. 291.
Phylogenetic Planes in Anesthesia. N. Davis.—p. 299.
Discussion of Anesthetic Procedures for Fenestration Operation (2,375 Cases). L. A. Stubensey.—p. 303.

Intravenous Use of Thiophanium Derivative.—Twenty-five patients with moderate hypertension or normal blood pressure were given a thiophanium derivative just before operation to bring about controlled hypotension. The drug used was Arfonad (d-3,4[1',3'-dibenzyl-2'-keto-imidazolido]-1,2 trimethylene thiophanium d-camphor sulfonate). Intravenous administration of a solution containing 0.25 to 1 mg. of Arfonad per cubic centimeter was started at a rate of 0.5 to 4 mg. per minute, with the patient placed in the supine position in a 5 degree head-up position. The patient's blood pressure was quickly reduced and the rate of administration of Arfonad was then lowered to 0.25 to 0.5 mg. per minute. The anesthetic agents used were ether, cyclopropane, nitrous oxide, *thiopental sodium, or decamethonium (Syncurine) bromide.* Arfonad apparently was not incompatible with any of these anesthetic agents. The same flexible, graded, and readily reversible lowering of the arterial blood pressure was obtained in these anesthetized patients who were undergoing operations as had been previously obtained in unanesthetized patients. Middle-aged, moderately hypertensive patients were definitely more susceptible to the vasodepressor action of Arfonad than the younger normotensive patients. Administration of hexamethonium chloride in addition to Arfonad had little effect in lowering the blood pressure that was not decreased with Arfonad alone. The graded, flexible vasodepressor response to the intravenous administration of Arfonad makes it possible to select and maintain an ideal hypotensive level by varying the flow rate. The hypotensive state is associated with a disturbance in the heat-regulating mechanism because of the prolonged peripheral vasodilitation. Therefore, a state of hypothermia is to be expected at the conclusion of the operation. Once the state of hypotension has been induced, very little additional anesthetic agent is required. It was the impression of the operating surgeons that the tendency to bleed and the actual loss of blood were less than would have occurred had *the arterial pressure remained normal. Postoperative hemorrhage,* such as might have been expected from smaller vessels that had been severed but had not been observed because of the hypotension, was not encountered. Six illustrative cases are described in detail. Arfonad is a useful agent for the production of graded and reversible hypotension with ether, cyclopropane, nitrous oxide, and thiopental anesthesia alone or in combination. The need to predict the depressor response of any given patient to a given dose of a drug has been modified by the continuous intravenous use of this agent, as the depressor effect of Arfonad is transient.

Annals Otol., Rhin. and Laryngology, St. Louis

62:1-284 (March) 1953. **Partial Index**

Further Microscopic Studies of Secretions of External Auditory Canal. C. D. Carr and B. H. Senturia.—p. 18.
Otogenic Intracranial Complications in "Antibiotic Era." M. Tamari and R. Henner.—p. 27.
Angiomas of Interest to Otolaryngologist. F. Z. Havens and H. B. Lockhart.—p. 36.
Tinnitus Aurium in Normally Hearing Persons. M. F. Heller and M. Bergman.—p. 73.
*Controlled Comparison of Eighth Nerve Toxicity of Streptomycin and Dihydrostreptomycin. W. E. Heck, W. J. Lynch and H. L. Graves. —p. 101.
Intranasal Encephalomeningocele. W. B. Finerman and E. I. Pick. —p. 114.
Toxic Effects of Dihydrostreptomycin Upon Central Vestibular Mechanism of Cat. J. Winston, F. H. Lewey, A. Parenteau and others.—p. 121.
Cardiospasm Associated with Pneumonitis, Bronchial Granuloma and Broncholithiasis. H. I. Laff.—p. 144.
Selection of Operation for Cancer of Larynx. J. J. O'Keefe.—p. 152.
Nasal Implants in Children and in Adults; with Preliminary Note on Use of Ox Cartilage. M. H. Cottle, T. J. Quilty and R. A. Buckingham.—p. 169.
Reflections on Aetiology of Simple Inflammatory Affections of Upper Air-Passages. J. N. Mackenzie.—p. 176.

Toxicity of Streptomycin and Dihydrostreptomycin for Eighth Nerve.—*Heck and associates* in 1951 compared the relative toxicity of streptomycin and dihydrostreptomycin in a controlled experiment. The primary objective was to note the relative therapeutic effects on pulmonary tuberculosis; as a corollary, the toxicity of both drugs was checked. Patients considered suitable for chemotherapy were alternately assigned to one of two groups. One group received drug "A" and the other drug "B." One drug was streptomycin sulfate and the other dihydrostreptomycin sulfate. Which was "A" and which was "B" was not known to the physicians in charge. Each patient received 1 gm. daily of one of the drugs for a total of 120 days. Each drug was given to 34 patients. Dihydrostreptomycin was more consistently effective than streptomycin. Studies on ototoxicity revealed that only 2 of 34 patients who received dihydrostreptomycin had vestibular disturbances; they were subjective only, consisting of transient minimal vertigo. Auditory disturbances, however, were evident in five patients. Six of the 34 patients receiving streptomycin had vestibular disturbances. No auditory disturbances occurred in this group. The neurotoxic effects on the eighth nerve by streptomycin were predominantly upon the vestibular apparatus and of dihydrostreptomycin on the auditory apparatus. It may be postulated that the vestibular dysfunction is reversible because the apparatus is an older, more primitive mechanism. The newer, exceedingly delicate auditory apparatus, on the contrary, has little recuperative ability.

Antibiotics & Chemotherapy, Washington, D. C.

3:333-472 (April) 1953. **Partial Index**

Streptomycin: Background, Isolation, Properties, and Utilization. S. A. Waksman.—p. 333.
Treatment of Pneumococcus Pneumonia and Some Common B Hemolytic Streptococcus Infections with an Oral Penicillin Suspension. L. Finberg, I. Leventer and A. Tramer.—p. 353.
*Scarlet Fever and Mixed Infections of Throat and Nasopharynx Treated Orally with Dibenzylethylenediamine Dipenicillin G. L. L. Coriell, R. M. McAllister, E. Preston III, and A. D. Hunt.—p. 357.
Dibenzylethylenediamine Dipenicillin G (Bicillin) in Dental Use: Clinical Observations on 150 Patients. I. G. Nathanson, G. E. Morin and S. P. Mallett.—p. 368.
Isoniazid and Neohetramine® in Delayed Treatment of Experimental Tuberculosis. C. J. Duca, F. J. Turner, E. Meyers and M. V. Rothlauf. —p. 375.
In Vitro Susceptibility of Actinomyces to Terramycin. A. Howell Jr. —p. 378.
Thioaurin, a new Crystalline Antibiotic. W. A. Bolhofer, R. A. Machlowitz and J. Charney.—p. 382.
New Sulfur-Containing Antibiotic, Produced by Streptomyces, Active Against Bacteria and Fungi. W. Eisenman, P. P. Minieri, A. Abbey and others.—p. 385.
Studies on an Antibiotic Extract of Leptotaenia Multifeda. S. Marcus and D. W. Esplin.—p. 393.
Antimalarial Activity of β-Resorcylic Acid and Analogs and Reversal by p-Hydroxybenzoic Acid. P. E. Thompson, A. M. Moore, J. W. Reinertson and A. Bayles.—p. 399.
Correlation of Results of Disk Antibiotic Sensitivity Tests and Clinical Course of 69 Patients with Acute Bacterial Meningitis. N. H. Broom. P. C. Martineau and D. C. Young.—p. 409.
An Evaluation of Commercial Prophylactics in Experimental Syphilis. *C. M. Carpenter and R. A. Boak.—p. 415.*
Vehicle for Topical Use of Certain Therapeutic Agents. A. Prigot, L. T. Wright and E. T. Quash.—p. 418.
l-Ephenamine Penicillin and Procaine Penicillin: Comparative Studies. J. N. Spencer and H. G. Payne.—p. 421.
Use of 5-Nitro-2-Furaldehyde-2 (2-Hydroxyethyl) Semicarbazone (Furadroxyl) in Treatment of Experimental Trypanosomiasis in Laboratory Animals. B. A. Cole, L. P. Frick, E. P. Hodges and R. E. Duxbury. —p. 429.

Scarlet Fever Treated Orally with New Salt of Penicillin.—An *oral suspension* of *N,N'dibenzylethylenediamine* dipenicillin G (Bicillin) was used in the treatment of 27 children with scarlet fever and 9 children and 2 adults with other infections of the throat and nasopharynx. The scarlet fever patients received the medication in average doses of 7,000 or 13,000 units per kilogram of body weight every six or eight hours. The drug was given on an empty stomach one hour before breakfast. To obtain comparative blood levels, each of 24 patients with scarlet fever received one dose with breakfast. Blood samples were withdrawn at varying intervals after medication to determine the blood concentration of penicillin. The average penicillin blood level rose more rapidly and to a higher level when the drug was administered on an empty stomach, but the blood level was more sustained when given with a meal. The differences were slight. The *drug may* be given without regard to the meals. All patients recovered rapidly and without complications or sequelae. The clinical response was as good in those showing blood levels of less than 0.025 unit per milliliter as in those showing higher penicillin plasma concentrations. There was no evidence of kidney damage nor of rheumatic fever as a result of streptococcic infection; no suppurative sequelae nor side-effects occurred. No serious or lasting cardiac abnormalities were demonstrated by electrocardiograms. The oral suspension is palatable, was accepted without difficulty by all patients in both groups, and was well tolerated.

Archives of Pediatrics, New York

70:107-140 (April) 1953

Obstructive Laryngeal Lesions in the Infant. J. J. O'Keefe.—p. 107.
*Domestic Water Fluoridation: Its Pathogenic Potentialities. W. J. McCormick.—p. 114.
Etiology and Occurrence of Arterial Hypertension in Poliomyelitis: Review of Literature. E. Coryllos.—p. 122.
Chronic Constipation in Children. H. B. Sheffield.—p. 135.

Pathogenic Potentialities of Domestic Water Fluoridation.—In 1930 it was established by biochemists in Arizona that fluorine in the water of the regions where "mottled" teeth are prevalent was responsible for this condition. The discovery that the incidence of tooth decay was also low in regions with relatively high fluorine content in the drinking water quickly led to the assumption that the natural fluorine content of the local water supply was the beneficial agent. Little attention was given to the possible favorable effects of sunlight, to the superior mineral content of foods, or to the fact that these regions produced citrus fruit with its high content of vitamin C. The precipitous conclusion regarding the relation of fluorine to dental health quickly led to agitation for fluoridation of domestic water supplies, with the result that some 20 million Americans are compelled to partake of this medicated beverage irrespective of its possible long-term deleterious effects. The author directs attention to the strong affinity of fluorosis for calcium, which makes it unite with the calcium of teeth and bones. The ingestion of vegetable and animal food from areas with high fluorine concentration has resulted in the cumulative deposition of this element in the bones and teeth of man and animals. Subjects who have been using naturally fluoridated water for several decades have considerable periodontal disease, with enlargement of the roots and narrowing or closure of root canals and pulp chambers; premature aging of the tooth structure is promoted and extraction is made very difficult, with tendencies to root fracture. Many of these patients have severe gingivitis and pyorrhea. Workers in cryolite mining, who inhale fluorine dust, exhibit not only the aforementioned dental defects but also osteophyte formations on bones, osteosclerosis, calcification of tendons, "poker backs," and fixation of the thoracic wall. These same effects have been noted in parts of Africa and India where the natives have long been using naturally fluoridated water. The author offers suggestions for protection against the toxic effects of fluorine for those who fiind themselves unwilling subjects of this experiment in mass medication. 1. He recommends the daily ingestion of small doses (5 to 10 grains [0.3 to 0.6 gm.]) of certain innocuous calcium salts; calcium ascorbate is particularly valuable, since it also releases vitamin C. 2. An optimal intake of foods rich in calcium is desirable, such as milk products and green salad vegetables. 3. An optimal intake of citrus fruits will provide natural vitamin C to help counteract the toxic fluoride.

Arizona Medicine, Phoenix

10:161-214 (May) 1953

Chronic Gastritis. M. L. Sussman and B. Copleman.—p. 161.
Comparison of Peritrate® and Other Organic Nitrates in Treatment of Angina Pectoris. E. Phillips.—p. 171.

Blood, New York

8:399-490 (May) 1953

Immunologic Studies of Hemoglobins: 1. Production of Antihemoglobin Sera and Their Immunologic Characteristics. A. I. Chernoff.—p. 399.
Id.: II. Quantitative Precipitin Test Using Anti Fetal Hemoglobin Sera. A. I. Chernoff.—p. 413.
Differences in Antigenic Specificity of Human Normal Adult, Fetal, and Sickle Cell Anemia Hemoglobin. M. Goodman and D. H. Campbell.—p. 422.
Two Cases of Sickle Cell Disease Presumably Due to Combination of Genes for Thalassemia and Sickle Cell Hemoglobin. J. V. Neel, H. A. Itano and J. S. Lawrence.—p. 434.
Paroxysmal Nocturnal Hemoglobinuria: Plasma Factors of Hemolytic System. W. H. Crosby.—p. 444.
Red Cell Stroma in Dogs: Variations in Stroma Protein and Lipid Fractions Related to Experimental Conditions. G. H. Tishkoff, F. S. Robscheit-Robbins and G. H. Whipple.—p. 459.
Some Aspects of Metabolism of Antimegaloblastic Substance in Man. R. H. Girdwood.—p. 469.

Circulation, New York

7:641-800 (May) 1953

Studies in Peripheral Arterial Occlusive Disease: I. Methods and Pathologic Findings in Amputated Limbs. S. Wessler and M. J. Schlesinger.—p. 641.
Study of Unipolar Left Back Leads and Their Application to Posterior Myocardial Infarction. S. R. Elek, L. M. Herman and G. C. Griffith.—p. 656.
Bronchoscopic Measurement of Left Auricular Pressure. P. R. Allison and R. J. Linden.—p. 669.
Cardiovascular Dynamics, Blood Volumes, Renal Functions and Electrolyte Excretions in Same Patients During Congestive Heart Failure and After Recovery of Cardiac Compensation. L. W. Eichna, S. J. Farber, A. R. Berger and others.—p. 674.
Plasma Electrolyte Concentrations in Ambulatory Cardiac Patients. N. S. Bricker and L. G. Wesson Jr.—p. 687.
Measurement of Liver Circulation by Means of Colloid Disappearance Rate: I. Liver Blood Flow in Normal Young Men. E. L. Dobson, G. F. Warner, C. R. Finney and M. E. Johnston.—p. 690.
Successful Prevention of Experimental Hypercholesteremia and Cholesterol Atherosclerosis in Rabbit. O. J. Pollak.—p. 696.
*Reduction of Blood Cholesterol in Man. O. J. Pollak.—p. 702.
Electrophoretic and Ultracentrifugal Analysis of Serum Lipoproteins of Normal, Nephrotic and Hypertensive Persons. L. A. Lewis and I. H. Page.—p. 707.
Cardiac Output, Central Volume and Dye Injection Curves in Traumatic Arteriovenous Fistulas in Man. G. E. Schreiner, N. Freinkel, J. W. Athens and W. Stone III.—p. 718.
Studies of Cerebral Circulation and Metabolism in Congestive Heart Failure. P. Novack, B. Goluboff, L. Bortin and others.—p. 724.
Calibration of Direct Ballistocardiogram. T. J. Reeves, K. Willis, E. Booth and H. Ellison.—p. 732.
Correlation of Ballistocardiogram with Work Performance and Energy Cost for Guidance in Rehabilitation of Cardiac Patients. H. Brown, S. H. Rinzler and J. G. Benton.—p. 740.

Reduction of Blood Cholesterol in Man.—Cholesterol is regularly found in human atherosclerotic lesions, and many manifestations of disease are caused by the presence of cholesterol in the vessel wall. A plant sterol mixture that contains 75 to 80% of sitosterols was given a trial as anticholesteremic agent in 26 healthy persons. The daily intake was 5 gm., divided into two doses, or 7 gm. or 10 gm. divided into three roughly equal doses taken with the meals for from eight days to eight months. All persons were on their usual diet. No restriction of intake of cholesterol and fats was attempted. Results showed that there are individual variations in the response to sitosterol. In some persons the daily dose and the total dose of sitosterol required to lower the blood cholesterol level may be twice the dose required in other persons with comparable initial levels. The response of free and ester cholesterol was almost always the same and the percentage of free to total cholesterol varied only slightly. No differences were seen in persons of different age or between men and women. On daily doses of 5, 7, or 10 gm. of sitosterol the minimum blood cholesterol level was reached within 7 to 14 days. Further decreases after this period were slight, even when 10 gm. were taken for two months. The higher the original blood cholesterol level the easier it was to depress it. Blood cholesterol levels below 200 mg. per 100 cc. could not be influenced. The more rapid and the more complete the depression of total free and ester cholesterol levels were, the more rapid was the return of these levels to the original height after the cessation of sitosterol therapy. In some persons, the return required 14 days and in others as long as 40 days. The administration of sitosterol appears to be a simple way to lower the blood cholesterol level. The author's experiments verified that sitosterol is not resorbed by man and that its oral intake does not interfere with health or with the metabolism of any foodstuff other than cholesterol. Ingestion of sitosterol in proper amounts prevents intestinal resorption of cholesterol. This results in lowering of blood cholesterols to the basal endogenous level. Continuous administration of sitosterol is required for maintenance of the basal blood cholesterol level.

Connecticut State Medical Journal, Hartford

17:379-490 (May) 1953

Management of Acute Injuries. A. P. Heusner.—p. 383.
Arthritis and Employment. H. H. Kessler.—p. 391.
Toxemia of Pregnancy: Survey. L. C. Chesley.—p. 393.
Congenital Polycystic Disease of Liver. M. Caplan and D. H. Badner.—p. 398.
Psychiatric Residency Training Program: 1. General Scope and Aims of Program. F. J. Braceland.—p. 401.
The Physically Handicapped in Industry. J. K. Northrop.—p. 403.

Delaware State Medical Journal, Wilmington

25:103-126 (May) 1953

The Electrocardiograph, Electrolytes, and Toxemia of Pregnancy. W. F. Preston, E. M. Bohan and J. R. Durham.—p. 103.
Further Observations on Use of Post-Prandial Blood Sugar in Treatment of Diabetes Mellitus: Apparent Cure of Three Obese Diabetics. E. M. Bohan, J. L. Ackerman, T. V. Hynes and H. A. Tarrant.—p. 108.
Surgical Considerations of Thromboembolic Phenomena. C. J. Dougherty. —p. 114.
Early Diagnosis of Poliomyelitis. G. J. Boines.—p. 119.

Endocrinology, Springfield, Ill.

52:367-488 (April) 1953

Response of Succinoxidase System of Rat Liver Homogenates to Single Dose of Thyroxine. H. J. Lipner and S. B. Barker.—p. 367.
Influence of Adrenal Cortex on Aerobic Glycolysis by Normal and Malignant Rat Lymphoid Tissue. S. Roberts and A. White.—p. 372.
Effects of Amphenone "B" on Thyroid and Adrenal Functions. J. R. Hogness, N. D. Lee and R. H. Williams.—p. 378.
Protein Anabolic Effect of Testosterone Propionate and Its Relationship to Insulin. O. V. Sirek and C. H. Best.—p. 390.
Conjoint Effects of Pyridoxine Deficiency and Anterior Pituitary Growth Hormone Administration in Rat. J. Beare, J. R. Beaton, F. Smith and E. W. McHenry.—p. 396.
Effect of Aspirin Upon Glycosuria of Partially Depancreatized Rats in Presence and Absence of Adrenal Glands. D. J. Ingle, D. F. Beary and A. Purmalis.—p. 403.
Antagonists to Cortisone: ACTH-Like Action of Steroids. R. Gaunt, C. H. Tuthill, N. Antonchak and J. H. Leathem.—p. 407.
Anemia in Rabbit During Pregnancy and Following Treatment with Water Soluble Ovarian Extracts. M. X. Zarrow and I. G. Zarrow. —p. 424.
Pituicytes and Origin of Antidiuretic Hormones. T. F. Leveque and E. Scharrer.—p. 436.
In Vivo Metabolism of Cortisone. S. Burstein, K. Savard and R. I. Dorfman.—p. 448.
Effect of Adrenalectomy, Surgical Trauma, and Ether Anesthesia Upon Capillary Resistance of Albino Rat. J. Kramár and M. Simay-Kramár. —p. 453.
Effects of Androgen and Estrogen in Castrated and Hypophysectomized C3H Mice. D. J. Ferguson and M. B. Visscher.—p. 463.
Effects of Corticosteroids on Urinary Formaldehydogenic Corticoids and 17-Ketosteroids in Normal and Subtotally Hepatectomized Rats. F. Del Greco, G. M. C. Masson and A. C. Corcoran.—p. 474.

Gastroenterology, Baltimore

23:533-704 (April) 1953

SYMPOSIUM ON ULCERATIVE LESIONS OF THE SMALL BOWEL AND COLON

*Treatment of Chronic Ulcerative Colitis. G. Crile Jr.—p. 533.
Life Stress and Regional Enteritis. W. J. Grace.—p. 542.
*Regional Enteritis—Its Allergic Aspects. A. H. Rowe, A. Rowe Jr. and K. Uyeyama.—p. 554.
Chronic Ulcerative Colitis Long-Term Studies on Clinical and Bacteriologic Response to Aureomycin. M. H. Streicher, G. G. Jackson and R. Kniering.—p. 572.
Extensive Entero-Colic Resection for Diffuse Ileitis: 22 Month Post-Operative Study with Death Due to Jejunitis. D. D. Kozoll, D. M. Pobanz and L. Baker.—p. 578.
Peroral Jejunoscopy and Duodenoscopy: Endoscopy of Uppermost Small Intestine After Total Gastrectomy. M. Paulson.—p. 593.
Tubeless Gastric Analysis: Study of 100 Cases. C. A. Flood, B. Jones, W. M. Rotton and H. Schwarz.—p. 607.
Sigmoidoscopic Examination: Indications, Technique and Analysis of 4500 Consecutive Examinations. P. L. Shallenberger and P. Fisher. —p. 612.
Prolapse of Gastric Mucosa: Summary of 150 Cases. A. Melamed, R. S. Haukohl and A. Marck.—p. 620.
Gastric Mucin and Its Constituents: Physico-Chemical Characteristics, Cellular Origin, and Physiological Significance. G. B. J. Glass.—p. 636.

Treatment of Ulcerative Colitis.—Ileostomies with simultaneous subtotal colectomies (removal of the colon down to the lowest part of the sigmoid that can be exteriorized) were performed on 15 patients with acute toxic ulcerative colitis. The two patients who died were moribund at the time of operation. The mortality rate was one-fourth of that following ileostomy alone or conservative treatment. Subtotal colectomies with simultaneous ileostomies were performed in 35 patients with chronic ulcerative colitis with no deaths. There were no deaths following the removal of the rectal stump in all of these patients. Indications for subtotal colectomy with simultaneous ileostomy in ulcerative colitis included a long-continued ulcerative process or pseudopolypoid change. In such cases the colon should be removed to prevent the development of cancer, and the risk of colectomy is much less than that of cancer. Another indication is systemic manifestations of the disease, such as arthritis or pyoderma gangrenosum. In these cases the colon should be removed promptly before irreversible damage is done or before the patient's general condition becomes so poor that life is endangered. In acute toxic ulcerative colitis the colon should be removed as soon as possible because the risk of the disease is high and colectomy is the most effective means of preventing its fatal complications. In any case of acute toxic ulcerative colitis in which the colon is distended, perforation is impending and a fatal termination is apt to ensue if an emergency colectomy is not performed. Although medical treatment and a trial with steroid therapy may have its place in the treatment of many of the mild or chronic manifestations of the disease, acute toxic ulcerative colitis with distention of the colon is a surgical emergency and should be treated by immediate colectomy.

Allergic Regional Enteritis.—Regional enteritis due to food allergy is reported in three women, aged 41, 30 and 49 respectively. That the regional enteritis in the first patient was due to food allergy was shown by the rapid relief of all symptoms and continued control for five years with a milk-free diet. The abdominal pain, cramping, and diarrhea reappeared in one day with the reintroduction of milk. This milk allergy was not indicated by skin testing or leukopenic index. The diagnosis originally was made by history and x-ray findings, and was confirmed by microscopic examination of a surgically removed portion of the inflamed ileum. In the second patient, the correlation of relief and recurrences with elimination or addition of milk, egg, and fruits indicated food allergy as the cause of the regional enteritis. Breaks in the diet caused a recurrence of symptoms. A new physician placed her on a soft, general diet. Increasing symptoms with anorexia and finally obstruction of the terminal ileum led to the resection of the involved bowel. For two postoperative months, with a soft, general diet containing the allergenic foods, four to six daily loose bowel movements continued. The authors believe that the recent resection of the ileum would have been avoided if the fruit and cereal-free elimination diet plus rice had been maintained. In the third patient symptoms were well controlled for 16 months on a fruit-free diet consisting of rice, tapioca, white potato, lamb, puréed carrots, squash, sugar, salt, and water. Recovery was hastened by administration of cortisone given orally in doses of 25 mg. three times daily for nine days. The evidence accumulated by Andresen and Rowe that allergy, especially to foods and pollens, is the major cause of chronic ulcerative colitis necessitates the study and treatment of the role of allergy in regional enteritis. The localization, spreading tendency, remissions and recurrences, fever, occasional inherited predisposition, and relief obtained with x-ray therapy and cortisone can be explained from the allergic viewpoint.

Geriatrics, Minneapolis

8:179-238 (April) 1953. **Partial Index**

Clinical Problems in Geriatric Rehabilitation. M. M. Dacso.—p. 179.
Physical Restoration of the Chronically Ill and Aged. M. B. Ferderber, A. C. Kraft and G. P. Hammill.—p. 186.
Retraining the Elderly Hemiplegic. M. W. Warren.—p. 198.
Rehabilitation in Malum Coxae Senilis. A. Farkas.—p. 204.
Morbid Anatomy of Old Age. T. H. Howell and A. P. Piggot.—p. 215.

GP (J. Am. Acad. Gen. Practice), Kansas City, Mo.

7:1-192 (May) 1953

Clinical and Radiologic Pelvimetry in Obstetrics. M. H. Grody.—p. 34.
Industrial Dermatitis. W. H. Eyster Jr.—p. 47.
Antabuse Treatment of Alcoholism. C. Helgeson.—p. 53.
Pessaries are Still Useful. J. C. Burch and H. T. Lavely Jr.—p. 57.
Prevention of Drowning. H. F. Dietrich.—p. 61.
Therapy of Hyperthyroidism. L. H. Kyle.—p. 69.

Illinois Medical Journal, Chicago

103:261-316 (May) 1953

Surgical Treatment of Duodenal Ulcer. K. A. Meyer and I. F. Stein Jr. —p. 276.
Surgical Management of Colon Emergencies. K. W. Barber.—p. 279.
Diagnosis and Treatment of Allergic Rhinitis. W. E. Owen.—p. 283.
Some Common Pediatric Accidents. J. K. Mack.—p. 288.
Relating Biochemistry to Clinical Judgment. S. Freeman.—p. 292.
Errors and Failures in Gallbladder Surgery. R. J. Patton.—p. 295.
Brachial Plexus Injuries Associated with Traumatic Shoulder Joint. D. S. Miller, W. F. Lichtman and R. O. Sebeck.—p. 299.

International Journal of Leprosy, New Orleans

20:429-576 (Oct.-Dec.) 1952

Classification of Leprosy a Proposed Synthesis Based Primarily on Rio De Janeiro-Havana System. H. W. Wade.—p. 429.
Note on Recorded Deaths from Leprosy, Continental United States, 1933-1948. J. A. Doull, H. H. Gray and H. Bancroft.—p. 463.
*Tuberculosis at United States Public Health Service Hospital, Carville, Louisiana, 1922-1950. H. H. Gray and H. Bancroft.—p. 467.
Diagnostic Value of Lipoid in Various Structural Types of Leprosy: Observation of 1053 Cases. R. D. Azulay and L. M. Cezar de Andrade.—p. 479.
Histopathological Changes Due to Sulfone Therapy: Observations of 449 Lepromatous Leprosy Cases. R. D. Azulay.—p. 485.

Tuberculosis in Leprosy Patients.—Tuberculosis is universally a common and serious complication in leprosy patients. Of 607 patients who died in the leprosarium at Carville, La., among 1,512 admitted prior to July 1, 1950, 141 had moderately or far-advanced active tuberculosis at the time of death, making tuberculosis a primary or contributary cause in 23% of all deaths. Another 16 patients had minimal active tuberculosis and 13 had arrested tuberculosis. The records of patients admitted to the Carville leprosarium between 1922 and 1950 were examined for evidence of active or arrested tuberculosis. Sulfone therapy improved the leprosy in these patients over a period of several years, with a marked reduction in deaths from all causes. The reduction in deaths of patients with tuberculosis has been even greater than in deaths of patients without tuberculosis. There has been an increase in the age at which tuberculous patients died since sulfone therapy has been instituted. Patients with tuberculosis and leprosy have had their tuberculosis arrested with sulfone treatment alone, but a combination of a sulfone and streptomycin appears to be more effective than a sulfone alone.

Iowa State Medical Society Journal, Des Moines

43:169-204 (May) 1953

What the Patient's Story Suggests to the Neurologist. H. W. Woltman.—p. 169.
Cancer Deaths in Children. E. G. Zimmerer.—p. 174.
Future of Young Diabetic. R. L. Jackson.—p. 175.
Cancer Incidence and Mortality. F. W. Mulsow.—p. 176.
Leptospirosis Due to Leptospira Pomona: Report of First Case in Iowa and Review of Literature. E. Larson.—p. 178.

Journal Clin. Endocrin. & Metab., Springfield, Ill.

13:489-628 (May) 1953

Syndrome of Eunuchoidism with Spermatogenesis, Normal Urinary FSH and Low or Normal ICSH ("Fertile Eunuchs"). E. P. McCullagh, J. C. Beck and C. A. Schaffenburg.—p. 489.
Hypogonadism with Spermatogenesis: Case Report. R. L. Landau.—p. 510.
Refractories to Antitetanic Therapy in Case of Surgical Hypoparathyroidism. R. W. Blohm Jr., O. A. Wurl, J. O. Gillespie and R. F. Escamilla.—p. 519.
*Influence of Some Hormonal Substances on Nitrogen Balance and Clinical State of Elderly Patients. W. B. Kountz, P. G. Ackermann and T. Kheim.—p. 534.
Functional and Histologic Effects of Therapeutic Doses of Radioactive Iodine on Thyroid of Man. B. M. Dobyns, A. L. Vickery, F. Maloof and E. M. Chapman.—p. 548.
Separation of 17-Ketosteroids in 24-Hour Urine Sample. B. L. Rubin, H. Rosenkrantz, R. I. Dorfman and G. Pincus.—p. 568.
Improved Method for Determination of Urinary 17-Ketosteroids. M. Masuda and H. C. Thuline.—p. 581.

Effects of Hormones on Nitrogen Balance in Elderly Patients.—Kountz and associates present observations on the nitrogen balance and clinical status of seven elderly persons with constant protein intake during the administration of a number of hormonal substances. Thyroid substance (¼ to 1 grain [16 to 64 mg.] per day) caused little change in nitrogen balance and slight improvement in the clinical state of these persons. Insulin (5 or 10 units of protamine zinc insulin per day) caused some increase in nitrogen retention, an increase in appetite, and changes in glucose tolerance curves. Oxytetracycline (Terramycin) caused no significant changes in nitrogen balance or clinical status. Cortisone (100 mg. per day) and corticotropin (15 to 60 mg. per day) both caused a marked increase in nitrogen excretion during the first days of administration, but there was a return to a positive nitrogen balance during continued administration of either drug. There was some edema and water retention in all persons who received cortisone and corticotropin. With both drugs there was an initial increased feeling of well-being. Irritability and mental depression developed after cessation of treatment.

Journal of Clinical Investigation, New York

32:391-458 (May) 1953

Some Effects of Injecting Sterile Solutions of Streptokinase-Streptodornase Into Subarachnoid Space of Normal Rhesus Monkeys. M. Hamburger and J. P. Biehl.—p. 391.
Variation in Diuretic Response to Ingested Water Related to Renal Excretion of Solutes. J. D. Rosenbaum, W. P. Nelson III., M. B. Strauss and others.—p. 394.
Studies on Copper Metabolism: IX. Transportation of Copper in Blood. C. J. Gubler, M. E. Lahey, G. E. Cartwright and M. M. Wintrobe.—p. 405.
Serum Polysaccharides in Diabetic Patients With and Without Degenerative Vascular Disease. J. Berkman, H. Rifkin and G. Ross.—p. 415.
Studies on Intravenous Water Diuresis and Nicotine and Pitressin Antiduresis in Normal Subjects and Patients with Liver Disease. S. H. Bernstein, R. E. Weston, G. Ross and others.—p. 422.
Interpretation of Rapid Intravenous Glucose Tolerance Test in Normal Individuals and in Mild Diabetes Mellitus. D. S. Amatuzio, F. L. Stutzman, M. J. Vanderbilt and S. Nesbitt.—p. 428.
Effect of Saccharides on Leukocyte Movement. A. Kuna and R. Chambers—p. 436.
Alterations in Ionic Composition of Isotonic Saline Solution Instilled into the Colon. A. D'Agostino, W. F. Leadbetter and W. B. Schwartz.—p. 444.
Effect of Cortisone on Urinary Excretion of 17-Ketosteroids in Patients with Cushing's Syndrome. J. W. Jailer, J. Louchart, J. J. Gold and A. I. Knowlton.—p. 449.
Exchangeable Thyroid Hormonal Pool: I. Its Magnitude and Rate of Turnover in Various Thyroid States in Man. M. W. Hamolsky, A. S. Freedberg, G. S. Kurkland and L. Wolsky.—p. 453.

Journal of Immunology, Baltimore

70:435-496 (May) 1953

Effect of Presence of Complement in Rabbit Serum on Quantitative Precipitin Reaction: II. Effect on Antigen and Antibody Precipitation. P. H. Maurer and D. W. Talmage.—p. 435.
Experimental Hypersensitivity: Effect of Adrenocorticotropic Hormone, Cortisone and Adrenalectomy on Serological and Histological Responses in Rabbit Following Injections of Foreign Proteins. F. C. Moll and C. Van Zandt Hawn.—p. 441.
Effect of Cortisone on Local Antibody Formation. S. P. Hayes.—p. 450.
Effects of X-Irradiation and Adrenalectomy on Phagocytic Activity. D. W. Esplin, S. Marcus and D. M. Donaldson.—p. 454.
Toxic Substance Associated with Rickettsias of Spotted Fever Group. E. J. Bell and E. G. Pickens.—p. 461.
Growth Curves of Coxsackie Viruses in Mice, Including Temporal Development of Complement Fixing Antigens. G. Contreras and J. L. Melnick.—p. 473.
Complement Fixing Antibodies Against Coxsackie Viruses in Mice. G. Contreras and J. L. Melnick.—p. 484.
Antibody Production and Tuberculin Sensitivity in Individuals with History of Rheumatic Fever. R. W. Quinn, C. V. Seastone and H. A. Dickie.—p. 493.

Journal of Infectious Diseases, Chicago

92:105-204 (March-April) 1953. **Partial Index**

Migratory Behavior of Larvae of Various Ascaris Species in White Mice: II. Longevity of Encapsulated Larvae and Their Resistance to Freezing and Putrefaction. J. F. A. Sprent.—p. 114.
Incidence of Antibodies for Toxoplasma Among Various Animal Species. L. T. Miller and H. A. Feldman.—p. 118.
Antigenic and Cultural Relationships of Lactobacillus Bifidus and Lactobacillus Parabifidus. N. B. Williams, R. F. Norris and P. György.—p. 121.
Development of Arsenic Resistance in Trypanosoma Gambiense and Its Influence on Parasitemia. E. J. Tobie and T. von Brand.—p. 132.
Diagnosis of Staphylococcal Mastitis, with Special Reference to Characteristics of Mastitis Staphylococci. L. W. Slanetz and C. H. Bartley.—p. 139.
Studies on Immunity to Asiatic Cholera. W. Burrows.—p. 152.
Studies on Intracerebral Inoculation of Newcastle Disease Virus (NDV) into Mice: I. Response of Weanling Mice to 24 Strains of NDV. E. Upton, R. P. Hanson, D. Dow and C. A. Brandly.—p. 175.
Histochemical Investigation of Spherule of Coccidioides Immitis in Relation to Host Reaction. J. E. Tarbet and A. M. Breslau.—p. 183.
Effect of Mapharsen on Glucose Metabolism of Trypanosoma Equiperdum. W. Cantrell.—p. 191.
Studies on Pathogenesis and Immunity of Tularemia: I. Demonstration of Protective Antibody in Mouse Serum. L. Pannell and C. M. Downs.

Journal of Investigative Dermatology, Baltimore

20:329-400 (May) 1953

Failure of Stilbamadine to Arrest Experimental Blastomycosis in Mice. J. Schwarz and S. Adriano.—p. 329.
Rapid Qualitative Method for Measuring Ion Exchanging Actixity of Dermatologic Preparations Containing an Ion Exchange Resin. A. E. Jurist.—p. 331.
Quantitative Colorimetric Assay Technic for Corticosteroids in Skin of Man. L. Goldman, E. Emura and J. Baskett.—p. 333.
Observations on Reactions of Larvae of Ancylostoma Canium and Aneylostoma Braziliense to Various Drugs and Chemical Compounds Based on In Vitro Tests. E. B. Ritchie and W. C. King.—p. 337.
Specific Tissue Alteration in Leprous Skin: III. Specific Reaction Due to Various Agents. F. Sagher, E. Liban and E. Kocsard.—p. 343.
Enzymatic Cytolysis of Epithelium by Filtrates from Patients with Ulcerative Colitis. R. B. Stoughton.—p. 353.
Tissue Culture Studies on Human Skin: IV. Comparative Toxic Effects of Antibiotics on Tissue Culture Explants of Human Skin and Embryonic Chick Spleen. F. Hu, C. S. Livingood, P. Johnson and C. M. Pomerat.—p. 357.
Relationship Between Certain Emotional States and Rate of Secretion of Sebum. M. Robin and J. R. Kepecs.—p. 373.
Effects of Topically Applied Hormones on Growth, Pigmentation and Keratinization of Nipple and Areola. C. E. Wheeler, E. P. Cawley and A. C. Curtis.—p. 385.

Journal Lab. and Clinical Medicine, St. Louis

41:663-828 (May) 1953

Normal Limits of Urinary Coproporphyrin Excretion Determined by Improved Method. L. Zieve, E. Hill, S. Schwartz and C. J. Watson. —p. 663.
Recovery of Aureomycin from Gastrointestinal Tract Following Intravenous Administration. L. R. Cole.—p. 670.
Urinary and Fecal Excretion of I^{131} from Labeled Sodium-L-Thyroxine in Various Thyroid States and in Euthyroids with "Bile Fistulas." P. C. Johnson and W. H. Beierwaltes.—p. 676.
Effect of Varying Insulin Dosages on Rate of Decline of Blood Sugar in Modified Glucose Insulin Tolerance Test. B. W. Volk and S. S. Lazarus.—p. 684.
Failure to Account Quantitatively for Infused Inulin in Human Subjects. J. H. Last, G. O. McDonald, R. A. Jones and E. E. Bond.—p. 690.
Idiopathic Congenital Dilatation of Pulmonary Artery. B. M. Kaplan, J. G. Schlichter, G. Graham and G. Miller.—p. 697.
*Treatment and Prophylaxis of Experimental Renal Hypertension with "Renin." G. E. Wakerlin, R. B. Bird, B. B. Brennan and others. —p. 708.
Graphic Measurement of Arterial Pressure in Unanesthetized Rat: Improved Method. F. del Greco, F. Olmsted, G. M. C. Masson and A. C. Corcoran.—p. 729.
Variations of Serum Lipids with Age. E. B. Man and J. P. Peters. —p. 738.
Cerebrospinal Fluid Inorganic Phosphorus in Normal Individuals and in Those with Viral Involvement of Central Nervous System. L. Odessky, P. Rosenblatt, A. V. Bedo and L. Landau.—p. 745.
Blood Cerebrospinal Fluid Barrier in Multiple Sclerosis During ACTH Administration. V. Rowland and C. T. Randt.—p. 754.
Cellular Changes in Effusions Following Intracavitary Administration of Colloidal Au^{198} in Human Beings. V. A. Stembridge, R. M. Kniseley and G. A. Andrews.—p. 760.
Rational Approach to Problems of Coagulation Time. G. W. Allen and A. M. Attyah.—p. 767.
Study of Rapid Slide Agglutination Test for Brucellosis and Comparison with Tube Agglutination Test. J. H. Schubert.—p. 776.
Some Observations on Assay of Staphylococcal Enterotoxin by Monkey-Feeding Test. M. J. Surgalla, M. S. Bergdoll and G. M. Dack.—p. 782.

Experimental Renal Hypertension Treated with Renin—The three principal hypotheses of the cause of renal hypertension are alteration in the renin-angiotonin (hypertensin) mechanism, decreased secretion of renal blood pressure regulating hormone, and increased formation of pressor amines by the kidney. Additional evidence is needed not only to clarify the physiological mechanisms involved in experimental renal hypertension but also because the many similarities between experimental renal hypertension and essential hypertension suggest the possibility of a partial common pathogenesis. As one approach to the problem, this research group reported the production of antirenin, an antibody to heterologous renins. Some interspecies reactions were observed, including neutralization in a dog of the pressor effect of dog renin by antirenin to hog renin. They also reported reductions in the blood pressures of dogs with renal hypertension with repeated injections of crude hog renin; probably the mechanism of these reductions involves an immune (antihormone) response to the heterologous hog renin, inasmuch as dog renin and heat-inactivated hog renin were shown to have no effect on the blood pressure of other dogs with renal hypertension. Now the authors present evidence that chronic experimental renal hypertension in dogs can be successfully treated or prevented by the use of crude and semipurified hog renins. These therapeutic and prophylactic effects are well-correlated with the antirenin titer. This evidence for antirenin (or an antibody to a protein closely related to renin) as the mechanism of the antihypertensive effects of hog renins supports the concept of the primary role of renin (or some closely related protein) in the pathogenesis of experimental renal hypertension. Hog renal medulla contains a factor that interferes with the antihypertensive effects of hog renin in experimental renal hypertension in the dog by a mechanism still unknown. Renotoxic and renal protective factors have been found to occur in fractions of renal extracts, as demonstrated by an increase and/or decrease in the incidence of uremia after constriction of the renal arteries. After further preliminary experiments in animals, the possible pathogenetic role of the kidney in essential hypertension will be studied by passive immunization of patients with purified antirenin against human renin.

Journal-Lancet, Minneapolis

73:159-214 (May) 1953. **Partial Index**

SYMPOSIUM ON METABOLISM OF POTASSIUM

Cellular Mechanisms of Potassium Metabolism. G. H. Mudge.—p. 166.
Distribution Kinetics of Intravenous Potassium K^{42}. W. S. Wilde, J. Ginsburg and W. G. Walker.—p. 168.
Role of Potassium in Activity of Nerve Cells. F. Brink Jr.—p. 171.
Absorption and Excretion of Potassium in Intestine. M. B. Visscher. —p. 173.
Significance of Potassium in Protein Synthesis and Some Aspects of Its Interrelationship with Sodium. P. R. Cannon.—p. 174.
Physiology of Renal Excretion of Potassium. J. P. Peters.—p. 180.
Role of Kidney in Potassium Depletion. R. Tarail.—p. 182.
Significance of Potassium in Uremia. N. M. Keith.—p. 184.
Relationship of Potassium and Inorganic Phosphorus to Organic Acid Soluble Phosphates in Erythrocytes: Metabolic Effects of Acidosis. G. M. Guest.—p. 188.
Experimental Potassium Depletion: Effect on Carbohydrate Metabolism and pH of Muscle. L. I. Gardner.—p. 190.
Effect of Potassium Ions and Other Electrolytes on Carbohydrate Metabolism in Liver Slices. C. T. Teng.—p. 192.
Antagonistic Effects of Sodium and Potassium on Carbohydrate Metabolism and Blood Pressure in Diabetic Children. W. H. Thompson.—p. 198.

Journal of Medical Education, Chicago

28:1-72 (May) 1953

By Precept—Critical Appraisal of Medical Teaching. E. H. Watson. —p. 11.
*Contributions of Postgraduate Medicine to Undergraduate Medical Education. R. L. Pullen.—p. 17.
Psychiatry in Medical Education. G. N. Thompson.—p. 24.
Otolaryngology Looks to the Future. G. D. Hoople.—p. 29.
Medical School and Public Relations. C. L. Williston.—p. 33.

Postgraduate Medicine and Undergraduate Medical Education. —The author presents comments, analyses, and experiences of several hundred practicing physicians. Many stated that they really began to learn medicine after they started their internship or entered active practice. Graduation from medical school is basically "commencement" insofar as the acquisition of medical knowledge is concerned, but this concept is somewhat unfair to undergraduate medical instruction, and raises questions such as is the curriculum designed to give the medical student a broad basis for entering medical practice? In a sense, undergraduate medical education occupies a position comparable to liberal arts education—an educational offering that is not purely technical nor complete in itself but is designed to equip the candidate to acquire and to extend his knowledge in fields in which he may be interested. If postgraduate medical education will record the present and future trends of medical practice, as well as examine the abilities of graduating physicians to meet these trends, it will render useful service. One of the deficiencies in the undergraduate medical curriculum is the insufficient training in the common, minor ailments. Inadequate training in the care of the chronically ill, in bedside diagnosis, in therapeutics, in fields like anesthesiology, diagnostic roentgenology, dermatology, psychiatry, and neurology were also frequently mentioned as deficiencies in medical training. There is also often a lack of comprehension of social, economic, governmental, and other factors influencing the nature of medical practice. The modern community hospital has become entrenched in the framework of medical care, and comprehension of the various facets of hospital operation should be known to all physicians. Many practicing physicians commented on the inability to express the causes and prevention of disease to lay patients in terms that are readily comprehensible; misunderstanding or lack of understanding of medical ethics; insufficient training in maintaining vital statistics; inadequate comprehension of public health and how the local public health agencies may contribute to private practice; lack of training in how to set up an office, arrange the doctor's bag, and organize one's time to conform to the demands placed on the physician; and lack of knowledge of various postgraduate medical opportunities.

Journal of Nutrition, Philadelphia

49:549-698 (April) 1953. Partial Index

Heat Processing and Nutritive Value of Milk and Milk Products. L. J. Schroeder, M. Iacobellis and A. H. Smith.—p. 549.
Further Studies Relating Liver Xanthine Oxidase to Quality of Dietary Protein. G. Litwack, J. N. Williams Jr., P. Fatterpaker and others.—p. 579.
Influence of Relative Humidity Upon Vitamin Deficiencies in Rats. R. A. Collins, M. Schreiber and C. A. Elvehjem.—p. 589.
Interrelationship Between Thyroid Activity, Dietary Fat and Lipogenesis. B. Kennelly and L. A. Maynard.—p. 599.
Effect of Antibiotics on Rats Fed Amino Acid-Supplemented Rice Diets. L. J. Pecora.—p. 621.
Effect of Coprophagy on Excretion of B Vitamins by the Rabbit. R. Kulwich, L. Struglia and P. B. Pearson.—p. 639.
Microorganisms in Intestines of Rats Fed Penicillin. J. Guzman-Garcia, W. B. Sarles and C. A. Baumann.—p. 647.
Effect of Antibiotics and Composition of Diets on Fecal Vitamin B_{12} and Biotin. B. F. Chow, R. L. Davis and S. Davis.—p. 657.

Journal of the Student A.M.A., Chicago

2:1-82 (May) 1953. Partial Index

Management of Blood Transfusion Reaction. S. Weiss.—p. 19.
Medical Student and BCG. J. Harrison.—p. 24.
Roundtable Report: Views on Internship Study. E. H. Leveroos, J. Mck. Mitchell, J. C. Leonard, B. S. Smith and J. Ebbinghouse.—p. 30.
Adapting to Your Medical Environment. L. H. Schriver.—p. 43.

Journal of Urology, Baltimore

69:605-738 (May) 1953. Partial Index

New Type of Artificial Kidney: I. Technique. G. Hollander, J. A. Sterling and J. C. Doane.—p. 605.
Hemorrhagic Telangiectasis: Case Report. C. A. Fort and G. A. Winstead.—p. 614.
Bobby Pin in Kidney Pelvis. O. A. Nelson, A. W. Kretz, J. L. McCormack and others.—p. 618.
Diverticulum of Ureter. W. E. Davis and F. K. Garvey.—p. 621.
Coudé Ellik Catheter for Stone Extraction. D. R. Smith and E. M. Apter.—p. 625.
Electrocystography: Study of Bladder Contractions Measured by Differences of Electropotential. G. S. Slater.—p. 626.
*Effect of Banthine in Treatment of Genito-Urinary Disorders. J. W. Draper, S. Wolf, J. F. Murphy and H. Kravetz.—p. 632.
Plastic Surgery on Urinary Bladder. R. W. Barnes, Wm. M. Wilson, R. T. Bergman and others.—p. 641.
Bladder Tumor Recurrence in Urethra: Warning. J. H. Kiefer.—p. 652.
*End Results in Treatment of Bladder Tumors. W. A. Milner.—p. 657.
Surgical Treatment of Vesicovaginal Fistula. W. I. Buchert.—p. 665.
Reconstruction of Perineal Urethra with Free Full-Thickness Skin Graft from Prepuce. D. Presman and D. L. Greenfield.—p. 677.
Infiltration of Prostate Gland by Chronic Lymphatic Leukemia. M. A. Johnson and A. H. Gundersen.—p. 681.
Osteitis Pubis Treated by Cortisone. W. J. Daw and A. H. Funke.—p. 686.
Carcinoma of Prostate with Unusual Metastasis. J. A. Ryan.—p. 692.
Rhabdomyosarcoma of Prostate. E. A. Grier and F. L. Phillips.—p. 695.
Utilization of Scrotum in Reconstruction of Penis. B. S. Chappell.—p. 703.
Cystic Lymphangioma of Scrotum. N. J. Helland and J. B. Miale.—p. 708.

Effects of Methantheline (Banthine) on Vesical Function.—The effects of methantheline (Banthine) on the function of the urinary bladder were investigated in 74 patients with various bladder disorders and in 17 normal subjects. Methantheline was given by mouth in single doses of 100 mg. or 150 mg. or in repeated doses of 50 to 100 mg. four times a day over a period of several weeks. Observations were made following intramuscular injections of 25 or 50 mg. Control observations were made with a bitter placebo of identical appearance, or by sterile hypodermic injection, as well as without the administration of any agent. The tone and capacity of the bladder were investigated with an ordinary water cystometer. An isotonic sodium chloride solution was introduced into the empty bladder slowly to avoid rapid abnormal distention of the bladder and consequent reflex contraction. The time of appearance of the desire to void and of the presence of pain were noted. Over 500 cystometric determinations were made. Usually there followed a decrease in bladder tone, associated with diminished force and frequency of spontaneous contractions, and this in turn usually resulted in an increase in bladder capacity. The effect was most striking in patients with contracted bladders and bladders of small capacity. In these subjects, nocturia, diuria, and strangury could be reduced with minor side-effects of the drug. In the absence of excessively strong stimuli, methantheline has been shown to relax bladder spasms caused by parasympathetic stimulation. Methantheline is a better antagonist to furtrethonium (Furmethide) than atropine in the dosage used in these experiments.

Results of Treatment of Bladder Tumors.—Milner was struck with the lack of correlation between reports on the pathological aspects of bladder cancer from different clinics. He regards the approach suggested by Jewett and Strong and slightly modified by Marshall as most sound from the clinical as well as the pathological viewpoints. Jewett observed that deeply invading tumors of a high degree of malignancy usually are difficult to treat and have high five year survival rates. In 104 cases Marshall found that his clinical preoperative estimation as to depth of invasion into the bladder wall was correct in 81% of the cases and that most errors were in underestimating the depth of penetration. Milner made the same observation and found that adequate biopsy specimens properly taken transurethrally will give a true picture of the degree of malignancy of bladder neoplasm. He marks the selected piece of tissue for biopsy by transfixing it vertically with a common pin before sending it to the laboratory so that the pathologist can imbed it in the paraffin block in such a way as to make vertical sections. Thus he can readily see the depth of muscle invasion. This along with the cystoscopic picture and bimanual examination with the patient under anesthesia, as described by Jewett, was found quite helpful by Milner. He evaluates the results obtained in 386 patients who were operated on five or more years ago. A total of 314, or 81.3%, could be followed up to the end of the reporting period. Only 58.3% of the patients with papilloma but 86.9% of those with cancer could be followed. The records were reviewed and an attempt was made to classify each case as to depth of extension of the tumor. Both the operative description and the pathological report were of value, and 261 cases could be classified. In the classification used by Milner, stage O indicates limitation to the mucosa; stage A, to the submucosa; stage B_1, to the superficial muscle; stage B_2, to the deep muscle; stage C, to the fat; and stage D, metastases, D_1 being local and D_2 being distant metastases. The results of seven different types of operative treatments are reviewed and correlated with the stage of the tumor and the survival rate. It was found that tumors of stages O, A, B_1, and B_2 have a better survival rate when treated conservatively than when radical surgery is employed. Tumors of stages C, D_1, and D_2 are best treated by radical surgery with lymph node dissection. If it were not for the postoperative mortality and morbidity, however, some stage B_2 tumors would probably be better treated by radical removal with node dissection. The operative mortality of the cases operated on by the closed method was 0.6%. The operative mortality of the open method was 15.2%.

Maryland State Medical Journal, Baltimore

2:165-222 (April) 1953. Partial Index

PANEL DISCUSSION ON DIETS

Obesity. J. E. Howard.—p. 172.
Obstetrics. N. J. Eastman.—p. 176.
Dermatology. R. C. V. Robinson.—p. 178.
Cardiac Diets. E. C. Andrus.—p. 180.
Hypertension. G. V. Mann.—p. 181.

Medicine, Baltimore

32:1-124 (Feb.) 1953

Pemphigus. W. F. Lever.—p. 1.

32:125-292 (May) 1953

Iron Metabolism and Hypochromic Anemia of Infancy. H. W. Josephs. —p. 125.
Clinical Course of Acute Renal Failure. R. C. Swann and J. P. Merrill. —p. 215.

Rhode Island Medical Journal, Providence

36:117-172 (March) 1953

Medico-Legal Aspects of Hand Dermatoses. M. Winkler.—p. 133.
Three Years of Voluntary Prepaid Surgical Insurance in Rhode Island. J. C. O'Connell.—p. 136.
Sulfonamides and Penicillin in Control of Rheumatic Fever in Children. B. Feinberg.—p. 138.

36:173-228 (April) 1953

Opposing and Balancing Hormones from Single Endocrine Glands. C. Solez.—p. 189.
Chronic Constrictive Tuberculous Pericarditis, Pulmonary Tuberculosis, and Terminal Tuberculous Meningitis. D. Calenda, D. W. Drew and J. Harris.—p. 193.
Clinical Use of Phenylbutazone, a Potent Anti-Rheumatic Agent: Report of Its Effectivenes in Four Cases. M. G. Pierik.—p. 196.
Cutaneous Manifestations of Diabetes Mellitus. A. B. Kern.—p. 198.

South Carolina Medical Assn. Journal, Florence

49:119-138 (May) 1953

Resuscitation of Heart. L. B. Jenkins, F. E. Nigels and J. A. Boone. —p. 120.
Utilization of Circulating Blood Volume Determination in Surgical Patients. J. A. Whiting.—p. 122.
Relation of Enrichment and Sanitation of Corn Meal to Health. E. J. Lease and M. D. Farrar.—p. 124.

Virginia Medical Monthly, Richmond

80:251-300 (May) 1953

Uses of Procaine for Purposes Other Than Production of Local Anesthesia. J. H. Weatherby.—p. 253.
Missed Diagnosis in Coronary Accident. J. E. Payne.—p. 259.
Hiatus Hernia as an Obscure Cause of Anemia. R. V. Crowder Jr. and G. B. Craddock.—p. 262.
Recent Trends in Treatment of Pulmonary Tuberculosis. F. B. Stafford, C. G. Pearson and L. B. Brown.—p. 268.
Cholecystectomy as Employed for Treatment of Acute and Chronic Cholecystitis and Cholelithiasis. J. D. Adams and J. P. Cary.—p. 277.
Remarks on Tuberculin Test and BCG Vaccine. W. R. Kay.—p. 280.
Disseminated Coccidioidomycosis: Report of Case. E. M. Chitwood Jr. —p. 284.

West Virginia Medical Journal, Charleston

49:117-144 (May) 1953

Residents of West Virginia and Study of Medicine. G. S. Dodds and E. J. van Liere.—p. 117.
Multiple Intussusception: Case Report. R. A. Salton.—p. 121.
Atopic Dermatitis. J. W. Calvert.—p. 123.
*Toxic Psychosis Due to Overdose of Isonicotinic Acid Hydrazide. J. Chu.—p. 125.
West Virginia's Camp for Juvenile Diabetics (Follow-Up Report on Camp Kno-Koma). W. C. Henson and G. P. Heffner.—p. 127.

Toxic Psychosis Due to Isoniazid.—A physician, aged 47, was committed for institutional care because of an alleged reaction to isoniazid. The history revealed that he had had active tuberculosis several years previously. The disease had been arrested but had become reactivated twice. At the time of a new relapse in 1952 he was given isoniazid in a dose of 500 mg. daily on an ambulatory basis. He was anxious to get well and increased the dose from time to time until he was taking 950 mg. daily. Soon after he began to feel nervous and restless. He took phenobarbital with each large dose of isoniazid for about one week. When the phenobarbital failed to relieve the nervousness and restlessness, he stopped taking it, but continued taking 700 mg. of isoniazid daily. Several days prior to his hospitalization, he became confused, irritated, violent, and antagonistic. His gait was ataxic and his language abusive. He harbored delusions of persecution. There was no history of previous mental illness, either personal or familial. He drank alcohol occasionally, but denied alcohol or drug addiction. He was suspicious, apathetic, and uncooperative. He spoke irrationally and irrelevantly and had delusions of persecution. There was a slight tremor of the hands and an ataxic gait. He was given sedatives for the first two nights after admission and vitamin B_1. On the third day he became more cooperative and friendly. From then on he ate and slept well and the paranoid delusions disappeared. It is believed that this patient had a toxic psychosis due to excessive intake of isoniazid. Phenobarbital intoxication was considered unlikely. The toxic dosage producing the psychosis was estimated to be 700 to 950 mg. daily, i. e., 10 to 14 mg. per kilogram of body weight. Persons taking this drug should be hospitalized, especially when daily doses larger than 10 mg. per kilogram of body weight are to be given.

Wisconsin Medical Journal, Madison

52:265-312 (May) 1953

Needle Biopsy of Liver. D. M. Buchman.—p. 265.
High Intestinal Obstruction in the Newborn. J. Erbes.—p. 270.
Surgery of Carcinoma of Rectosigmoid in Selected Cases. H. B. Benjamin and M. Wagner.—p. 277.
Further Experiences with Vein Stripping for Varicose Veins. J. M. Sullivan.—p. 281.

Yale Journal of Biology and Medicine, New Haven

25:299-446 (April) 1953. Partial Index

*Effect of Cobalt-60 Gamma Radiation on Passive Immunity. W. M. Hale and R. D. Stoner.—p. 326.
Some Comments on Growth and Development in Adolescents. J. R. Gallagher and C. D. Gallagher.—p. 334.
Group A Polysaccharide Precipitin Reactions in Acute Streptococcosis and Rheumatic Fever. L. Weinstein.—p. 349.
Infant Diarrhea in Finland. M. E. Wegman.—p. 358.
Antibiotic Therapy. C. A. Chandler.—p. 369.
Comparative Action of Dicumarol and of Phenylindanedione on Coagulase Reacting Factor and on Prothrombin. M. Tager.—p. 374.
Mechanism of Regulation of Food Intake. J. L. Strominger and J. R. Brobeck.—p. 383.
Adaptation of Influenza Virus to Mice: I. Genetic and Environmental Factors Affecting Prime Strain of Influenza Virus. B. A. Briody, W. A. Cassel, J. Lytle and M. Fearing.—p. 391.
Roentgenological Aspects of Renal Function. H. M. Wilson.—p. 401.
Clinical Studies in Infertility: Statistical Survey.—E. D. Karlovsky and H. Thomas.—p. 405.

Effect of Radiocobalt (Co^{60}) Gamma Radiation on Passive Immunity.—Hale and Stoner chose radiocobalt (Co^{60}) gamma rays for the study of the effect of whole body ionizing radiation on the immunity mechanism. The radiation source was composed of 21 pieces of Co^{60}, arranged to give a uniform field at 12 in. (30 cm.) from the source. Fifty mice could be irradiated at one time. The intensity at the time of these experiments was approximately 650 rep per hour and the LD_{50} for mice 28 days of age was 750 rep per hour. The detrimental effect of Co^{60} gamma irradiation on passive immunity to pneumococcus type 3 organisms is shown in one table. Another table shows the effect of Co^{60} gamma radiation on mouse resistance to pneumococcus type 3 mixed with a tenfold excess of specific antiserum, when the mice were irradiated three days before the injection of the bacterial and antiserum mixture. It was found that the 650 rep whole body irradiation destroys the protective power given by this amount of immune serum. The radiation controls showed that no deaths were due to radiation alone. An attempt was made to decrease the Co^{60} gamma irradiation effects by injecting mouse leukocytes and whole citrated mouse blood, but the results indicated that neither the white blood cells nor the whole blood transfusions were effective in restoring the resistance enjoyed by nonirradiated animals. The authors do not feel, however, that this experiment should be considered conclusive. They believe that better methods for obtaining leukocytes may eventually make possible the restoration of the resistance of irradiated animals. Studies were made also on passive immunity to tetanus toxin and to influenza virus. It was found that whole body irradiation does not cause susceptibility to tetanus toxin when sufficient specific antitoxin was present at the time of irradiation. The active immunity to influenza type A virus is not altered by this form of irradiation.

FOREIGN

Acta Chirurgica Scandinavica, Stockholm

104:425-512 (No. 6) 1953. **Partial Index**

*Further Investigations on Getting Patients up from Bed Early and on Dicumarol Treatment as Prophylactic for Post-Operative Thrombosis. S. Borgström.—p. 425.
*Right Upper Quadrant Pain in Salpingitis and Other Abdominal Diseases Explained by Absorption of Exudates from Peritoneal Cavity Through Diaphragm. P. Holm-Nielsen.—p. 435.
Hyperparathyroidism: Report of Five Surgical Cases. G. Eklöf.—p. 447.
Adrenaline-Producing Tumor Outside Adrenal Glands: Study in Connection with Case. K. Wird-Lökk and K.-G. Tilinger.—p. 458.
Subcutaneous Emphysema Following Rectal Perforation. S. Borgström.—p. 465.

Prophylaxis of Postoperative Thrombosis.—In 1950, 2,351 patients and, in 1951, 2,109 patients operated on for disease of the prostate, stomach, colon, rectum, gallbladder, bile ducts, kidneys, ureters, bones and joints, breast, appendix, thyroid, and hernia were given bishydroxycoumarin (Dicumarol) prophylactically from the first postoperative day. All the patients were at least 40 years old. Early ambulation was used in all cases except in cases of surgical treatment of hernia. The patients left their beds on the first postoperative day, and were given breathing exercises and passive and active movement therapy. Increased recurrence of hernia in patients operated on for uncomplicated inguinal hernia who left their beds on the first postoperative day induced the author to have these patients stay in bed for the first three postoperative days, but they received breathing exercises and passive and active movement therapy in bed. The results in the 1950 and 1951 groups were compared with those obtained in 2,051 patients between the ages of 25 and 44 who were operated on between 1946 and 1949; they were also given bishydroxycoumarin prophylactically from the first postoperative day, and early ambulation was employed. The incidence of thromboembolism was the same in the three groups of patients, i. e., 1.5 ± 0.27% in the patients treated in the earlier years, 1.5 ± 0.25% in those treated in 1950, and 1.4 ± 0.26% in 1951. Despite the fact that bishydroxycoumarin was not given to patients between the ages from 25 to 39 during 1950 and 1951, the incidence of thromboembolism during these years was not affected. It remained at the same low level as in the patients 25 or older who had been treated in the earlier years. A previous report in which the results of prophylactic treatment with bishydroxycoumarin combined with early ambulation were compared with those in patients who did not receive this type of treatment showed that the incidence of thromboembolism occurring in patients aged 45 or more had decreased by about 75% when compared with patients who had not received the prophylactic treatment. Fatal hemorrhages did not occur following bishydroxycoumarin therapy in any of the three groups.

Right Upper Quadrant Pain in Salpingitis.—About 10% of patients with salpingitis complain of lancinating upper abdominal pain localized in the area below the right costal margin. The anatomic basis of this pain is inflammatory changes in the serous membrane of the right subphrenic space. Results of necropsy studies by the author on 38 patients who died of diffuse peritonitis and of 21 patients who died of peritoneal carcinomatosis support the view that exudates and tumor cells are absorbed from the peritoneal cavity in man through the lymphatics of the diaphragm. This provides a logical explanation for the perihepatitis frequently demonstrated in cases of salpingitis and for the right upper quadrant pain associated with the inflammatory changes of the serous membrane of the subphrenic space. The same pain may also occur in other abdominal diseases associated with exudation into the peritoneal cavity. It may also occur after a laparotomy, when it is probably caused by accumulation of a postoperative peritoneal exudate below the diaphragm, and it may easily be mistaken for a pulmonary infarct. Diagnosis of pulmonary infarction should never be made on the basis of the characteristic pain alone. Pulmonary symptoms such as cyanosis and bloody sputum must also be present, and attention should be focused on a possible simultaneous occurrence of other symptoms of thromboembolism.

British Journal of Cancer, London

7:1-156 (March) 1953. **Partial Index**

Increase in Incidence of Carcinoma of Lung in Denmark, 1931 to 1950. J. Clemmesen, A. Nielsen and E. Jensen.—p. 1.
Incidence of Cancer of Lung in Coal Miners in England and Wales. E. L. Kennaway and N. M. Kennaway.—p. 10.
Relation Between Delay in Treatment of Cancer and Survival Rate. W. L. Harnett.—p. 19.
Prognostic Significance of Small Size in Breast Cancer. L. Kreyberg and T. Christiansen.—p. 37.
Skin Cancer in the South African Bantu. M. P. Shapiro, P. Keen, L. Cohen and J. F. Murray.—p. 45.
Relationship of Molluscum Sebaceum (Kerato-Acanthoma) to Spontaneously Healing Epithelioma of Skin. F. A. Fouracres and J. W. Whittick.—p. 58.
Duodenal Carcinoma with Neoplastic Transformation of Underlying Brunner's Glands. A. C. Christie.—p. 65.
New Theory on Cancer-Inducing Mechanism. C. O. Nordling.—p. 68.
Further Evidence of Essential Differences Between Some Chemically-Induced and Virus-Induced Fowl Tumours. P. R. Peacock and A. Peacock.—p. 120.

British Medical Journal, London

1:1063-1122 (May 16) 1953

Epidemic Haemorrhagic Fever: 40 Cases from Korea. R. Andrew.—p. 1063.
Paralysis Following Poisoning by New Organic Phosphorus Insecticide (Mipafox): Report on Two Cases. P. L. Bidstrup, J. A. Bonnell and A. G. Beckett.—p. 1068.
Progesterone Implantation in Habitual Abortion. G. I. M. Swyer and D. Daley.—p. 1073.
Pain in the Trunk. J. Cyriax and J. Gould.—p. 1077.
Pyrimethamine (Daraprim) as Prophylactic Agent Against West African Strain of P. Falciparum. G. Covell, P. G. Shute and M. Maryon.—p. 1081.
Proctalgia Fugax. M. R. Ewing.—p. 1083.
Adrenaline Cream: Assessment of its Value in Rheumatic Disorders. J. S. Lawrence and R. J. Sladden.—p. 1085.
Sézary's Reticulosis with Exfoliative Dermatitis. H. T. H. Wilson and J. Fielding.—p. 1087.

Bull. World Health Organ., Geneva

8:1-418 (Nos. 1-2-3) 1953. **Partial Index**

Biological Investigations on Treponemes. T. B. Turner, D. H. Hollander and K. Schaeffer.—p. 7.
Non-Specific Factors in Epidemiology of Yaws. K. R. Hill.—p. 17.
Treatment of Infectious Yaws with One Injection of Penicillin. S. Levitan, C. Rodriguez, J. C. Jacobs and others.—p. 55.
Time-Dosage Relation in Penicillin Therapy with Special Reference to Yaws. 1. Laboratory Basis for Effective Therapy. D. K. Kitchen and C. R. Rein.—p. 77.
Id.: 2. Clinical Basis for Effective Therapy. C. R. Rein and D. K. Kitchen.—p. 91.
Antibiotics Other Than Penicillin in Treatment of Yaws. K. R. Hill.—p. 107.
Extent and Nature of Yaws Problem in Africa. C. J. Hackett.—p. 129.
Diagnostic Aids in Mass-Treatment Campaigns Against Yaws. C. R. Rein.—p. 245.
Experience with Yaws Control in Indonesia: Preliminary Results with Simplified Approach. M. Soetopo and R. Wasito.—p. 273.

Deutsche medizinische Wochenschrift, Stuttgart

78:687-726 (May 8) 1953. **Partial Index**

Study on Hormonal Effectiveness of Peat and Mud Baths. H. Hosemann.—p. 687.
Investigation on Effect of Salicylated Humic Acid Baths on Excretion of Estrogens in Urine. E. Hiller.—p. 691.
Problem of Static Diseases. H. Gardemin.—p. 693.
*Contribution to Treatment of Acute Hematogenous Osteomyelitis with Penicillin. A. Röhling.—p. 701.

Penicillin in Acute Hematogenous Osteomyelitis.—Penicillin was given to 20 patients between the ages of 1½ and 15 years, for treatment of acute hematogenous osteomyelitis. Long, tubular bones were involved in 16 patients and in 4 the pelvic bones. The interval between the onset of the disease and the institution of the treatment varied from 2 to 14 days. Doses of 8 to 12 million units of the drug were given over a period of three to four weeks. Additional treatment consisted of immobilization for six weeks to three months in six patients, wide surgical drainage of a subperiosteal abscess in 12, and sequestrectomy in 1. Staphylococcus aureus was cultured from the pus in every case. Spontaneous fractures of the involved bones near the upper metaphysis of the humerus occurred in two patients. Nineteen of the 20 patients recovered completely, while chronic osteomyelitis developed in one. A follow-up of 10 patients for two or more years revealed complete healing, no recurrence, and neither atrophy of the involved extremities nor ankylosis of the joints. Roentgenologic examination of patients treated with penicillin revealed typical changes in the morphological course of the disease. The amount of bone destruction depends on the occurrence or absence of a subperiosteal abscess. As a rule an abscess does not occur if treatment with penicillin is instituted before the third day after the onset. In the absence of a subperiosteal abscess usually only insignificant round transparencies in the diseased metaphysis are visible. A reactive periostitis is regularly associated with a shell-like layer of the periosteum. The roentgenologic picture is different if a subperiosteal abscess develops. Within four weeks after the onset of the disease widespread destruction of the bone (necrosis) due to interrupted blood supply is manifested. Rapid and intensive regeneration occurs within eight weeks. Despite the interrupted blood supply, enough penicillin reaches the necrotic bone by diffusion to reduce considerably the number of pathogenic agents and to prevent the breaking down of the bone. Little new formation of bone was observed within the first six to eight weeks of the disease, and resorptive phenomena were predominant. Penicillin is a valuable adjuvant in the treatment of acute osteomyelitis, but surgical drainage of the subperiosteal abscess and immobilization are still the principal means of treatment of suppurative osteomyelitis.

Indian Journal of Surgery, Madras

15:1-64 (March) 1953. **Partial Index**

*Surgical Treatment of Tuberculous Pericarditis. R. H. Betts and J. T. Wells.—p. 1.
Use of a Snare Tourniquet in Mitral Valvotomy—A Suggested Modification of Technique. P. K. Sen.—p. 15.
Paraduodenal Herniae. V. R. Rao.—p. 19.
Congenital Oesophago-Bronchial Fistula, Persistent to Adolescence. T. Thomas, R. H. Betts and J. T. Wells.—p. 28.
Intramedullary Nailing for Fractures of Shaft of Femur (Use of New Type of Nail). A. K. Basu and B. Mukherji.—p. 33.
Giant-Cell Tumour with Brief Survey of Bone Tumours Examined in Department of Pathology, Madras Medical College, Madras. D. G. Reddy.—p. 37.
Prolapse of Rectum in Children. R. A. Irani.—p. 43.

Surgical Treatment of Tuberculous Pericarditis.—Surgical correction of constrictive pericarditis has received sporadic attention. Recently there has been much discussion as to the relative merits of decorticating the various chambers of the heart. The authors present histories of four patients who were subjected to pericardiectomy. Constrictive pericarditis may follow an inflammatory process in the pericardium, but a large percentage of the cases are caused by tuberculous infection. Many lesions treated surgically after subsidence of the acute process may no longer be recognized as tuberculous. In any patient who has had a pericardial effusion the syndrome of polyserositis may develop owing to obstruction of the venous return. In the majority of cases the encasement of the left ventricle seems the most prominent feature, and a complete freeing of the ventricle is necessary for a good result. There are cases in which the right side of the heart seems to be involved as much as, if not more than, the left. The lower sternum splitting incision of Holman gives adequate exposure for pericardiectomy. Satisfactory resection of the pericardium is usually followed by rapid clinical improvement. If improvement advances very slowly, the heart has probably been incompletely freed. In three of the four reported cases, the lesions were definitely tuberculous and these three patients experienced dramatic improvement following pericardiectomy. The fourth patient had extensive pulmonary tuberculosis, but the excised pericardium did not show tuberculous foci. In the last case the heart was not completely decorticated and this is the only one that has been improved rather than apparently cured. In this case a second operation may be necessary.

Journal of Physiology, Cambridge

120:257-448 (May) 1953. **Partial Index**

Glycolysis and Cytochemistry of Cerebral Cortex. K. C. Dixon.—p. 267.
Uptake of Radio-Iodine by Rabbit's Thyroid Measured in Vivo. N. B. Myant.—p. 278.
Comparison of Effects of Thiouracil, Thyroxine and Cortisone on Thyroid Function of Rabbits. N. B. Myant.—p. 288.
Muscularis Mucosae of Human Stomach. D. N. Walder.—p. 365.
*Expiratory Function of Abdominal Muscles in Man: Electromyographic *Study.* E. J. M. Campbell and J. H. Green.—p. 409.
Release of Histamine by Liver. G. V. Anrep, G. S. Barsoum and M. Talaat.—p. 419.
Blood Histamine in Experimental Obstruction of Common Bile Duct. G. V. Anrep and G. S. Barsoum.—p. 427.

Expiratory Function of Abdominal Muscles.—The muscles of the anterior and lateral abdominal wall are generally regarded as the principal expiratory muscles. By their contraction the intra-abdominal pressure is increased and the diaphragm is driven upwards; these muscles also pull the costal margin downwards. Campbell and Green used an electromyographic method for studying their activity. The activity of the external oblique and rectus abdominis muscles on the right side of 19 young men in the supine position was studied. Records were made under the following conditions: (1) during graded static expiratory effort, (2) during rebreathing from the spirometer to produce asphyxia, and (3) during performance of certain skeletal movements, i. e., lateral flexion of the trunk and raising the shoulders off the couch. It seemed to the authors that two kinds of expiratory effort may be recognized: (1) expiration occurring as a "voluntary" maneuver as in a static expiratory effort or voluntary hyperventilation or in coughing or straining; (2) expiration occurring in the course of "involuntary" natural breathing, either quiet respiration or when the breathing is stimulated by chemical agents. There is more activity of the abdominal muscles in voluntary expiration than in involuntary breathing. The level of pulmonary ventilation achieved in asphyxial hyperpnea need not involve gross fluctuations in intra-abdominal pressure that might embarrass the circulation. It seems that, when the respiratory center is stimulated maximally by aspyhxia, it can recruit only a fraction of the motor neurone pool of the abdominal muscles. In voluntary maximal breathing, however, it is possible that the respiratory center is partially or wholly by-passed by impulses from a higher brain level. Even this higher brain level cannot recruit the abdominal muscles fully, however, as is shown by the greater degree of activity of these muscles during voluntary skeletal movement.

Lancet, London

1:959-1006 (May 16) 1953

Need for Philosophy of Medicine. R. Brain.—p. 959.
*Treatment of Lupus Vulgaris with Isoniazid: Review of 15 Cases. B. Russell, N. A. Thorne and R. V. Grange.—p. 964.
*Localised Muscular Atrophy in Diabetes. C. Hirson.—p. 968.
Ascorbic Acid, Glucose-1-Phosphate, and Lysergic-Acid Diethylamide in Rheumatoid Arthritis. R. R. H. Lovell, J. A. Osborne, H. C. Goodman and B. Hudson.—p. 970.
Control of Blood-Pressure in Operation for Phaeochromocytoma. C. C. Cobb, J. Hall and R. A. Hall.—p. 973.
Adrenergic Amines of Human Blood. H. Weil-Malherbe and A. D. Bone.—p. 974.
Pneumoflator for Treatment of Respiratory Paralysis. R. A. Beaver.—p. 977.

Isoniazid in Lupus Vulgaris.—Isoniazid was given to 15 patients with lupus vulgaris. Three had not been treated previously. Five patients received the drug orally in doses of 300 mg. daily; six were given from 50 to 250 mg. of isoniazid in from 2 to 5 ml. of distilled water by weekly intradermal injections into the lesion; and four received 300 mg. of the drug daily by the oral route and 400 mg. weekly by the intradermal route. All the patients tolerated the drug well, and there was no evidence that drug resistance had developed after 30 weeks of treatment. Mild urticaria occurred in one patient who was given the drug orally, but it was not severe enough to necessitate discontinuation of the therapy. At the time of writing, the lesions of one patient were considered clinically cleared, since all signs of activity had disappeared from them. Only opacity of the lesions with slight residual scaling or discoloration was present in four patients. A moderate improvement had occurred in seven patients whose lesions were more opaque and scaling and discoloration had diminished, although a mild residual infiltration was still present. There was a slight but perceptible decrease of redness, infiltration, scaling, and translucency in the lesions of two patients. The condition of one patient remained unchanged. The authors feel that daily injection of isoniazid would be as effective as, or even more effective than, the oral administration. This method, however, cannot be extended to all patients with lupus vulgaris, since most of them are fully employed. They also suggest that isoniazid combined with calciferol may give better and quicker results than either agent alone, since isoniazid seems to have a direct action on the organisms and calciferol seems to stimulate the patient's power of resistance.

Localized Muscular Atrophy in Diabetes.—Localized areas of muscle atrophy that suggested the presence of a specific process independent of insulin atrophy were observed in six women with diabetes who had received insulin for from 4 to 11 years. The characteristic induration usually found in insulin lesions was not present in these cases, and the circumscribed areas were found in parts of the body other than those into which the drug was usually injected. Other authors found no evidence of insulin atrophy remote from the site where insulin was injected. A diagnosis of panatrophy was not justified because the skin of the atrophied areas was always normal, and, although the three patients had some neurological abnormalities, the muscle lesions did not correspond to any nerve distribution. This condition probably represents a specific diabetic lesion that is independent of insulin lipodystrophy.

Münchener medizinische Wochenschrift, Munich

95:597-620 (May 22) 1953. **Partial Index**

Prenatal Care by the Practitioner. C. Schroeder.—p. 599.
Closed Traumatic Rupture of Median Meningeal Artery. A. Angerer. —p. 602.
"Anlage" as Causal Factor: Critical Remarks. H. Stursberg.—p. 604.
*Isoniazid in Treatment of Miliary Tuberculosis and Tuberculous Meningitis. E. Messmer.—p. 605.

Isoniazid in Miliary Tuberculosis and in Tuberculous Meningitis.—The ages of seven patients treated with isoniazid ranged from 15 to 70 years. In the first three patients who had tuberculous meningitis and miliary tuberculosis an attempt was made to use isoniazid exclusively. The total daily dose averaged 15 mg. per kilogram of body weight, and 50 mg. of this amount was given by the suboccipital route. No therapeutic effect was noted with this treatment, whereas as soon as streptomycin and *p*-aminosalicylic acid were given, considerable improvement became evident. Exclusive administration of isoniazid was continued as long as it seemed compatible with the condition of the patient. The inefficiency of isoniazid was demonstrated particularly by the fact that, despite intrathecal injections, tubercle bacilli remained demonstrable in the cerebrospinal fluid. The objection that these might have been avirulent tubercle bacilli is refuted by the fact that cultures and animal experiments were positive. The fourth case is noteworthy because a relapse during treatment with isoniazid was followed by death within a few days. The fifth patient, a 70-year-old woman, who had tuberculous meningitis and pulmonary miliary tuberculosis was treated successfully during the acute stage with streptomycin and *p*-aminosalicylic acid. Soon intolerance for the latter drug became evident, and so isoniazid was substituted for it. When the treatment was continued with streptomycin and isoniazid, the result was equally favorable. It is believed that in this case the addition of isoniazid contributed to the favorable effect. The sixth and seventh patients had miliary tuberculosis without involvement of the meninges; in one of these the results of exclusive administration of isoniazid were unsatisfactory, and not until streptomycin was given did improvement become evident. Under the influence of the combined treatment miliary dissemination regressed within three months. In the seventh case, although fever subsided during the combined administration of streptomycin and isoniazid, roentgenoscopy revealed no regression of the miliary dissemination. The exclusive use of isoniazid does not produce satisfactory results in the treatment of adults with tuberculous meningitis or miliary tuberculosis.

Nordisk Medicin, Stockholm

49:561-598 (April 17) 1953. **Partial Index**

Complications During Tridione Treatment of Epilepsy in Children. B. Redin.—p. 563.
Acute Vulvovaginitis in Streptococcal Infections. P. Hedlund.—p. 566.
*Fulminant Meningococcus Infection with Purpura: Case with Recovery. S. I. Björklund.—p. 571.
Osteogenesis Imperfecta Congenita with Intrauterine Diagnosis. T. Hortemo.—p. 574.
Xerophthalmia in Sick Infants Due to Deficiency in Vitamin A Resorption. M. Zewi.—p. 575.

Recovery from Fulminant Meningococcus Infection with Purpura.—Fulminant meningococcus infection with purpura is usually an acute disease. With timely and intensive therapy and the usual antishock treatment, the prospect of saving these patients is good. Björklund believes his case in a 5-year-old girl is the only one reported where the excretion of 17-ketosteroids and 11-oxysteroids was examined and determination of the serum electrolytes done before the start of treatment and during the acute phase of the infection. The normal values testified against marked irreversible injury to the adrenal cortex. The patient was moribund for some hours after admission, with shock and postmortem-like lividity, but improvement soon began and recovery occurred after about a week. Large doses of penicillin, sulfonamide, an adrenal cortex extract (Eschatin), desoxycorticosterone acetate, and vitamins C and K were given. The administration of cortisone instead of adrenal cortex extract is suggested. There seems to be a sequence from fulminant meningococcus infection and purpura with recovery, where shock and infection are controlled and the adrenal cortex is protected, to the same disease with fatal outcome, where necropsy reveals degenerative changes, and to the Waterhouse-Friderichsen syndrome, where necropsy discloses hemorrhages in the adrenal cortex.

Rivista Italiana di Ginecologia, Bologna

36:85-170 (No. 2) 1953

*Attempts of Enzymatic Treatment (Hyaluronidase) of Toxemia of Pregnancy. C. Pellizzari.—p. 85.
*Hyaluronidase and Induction of Delivery. C. Pellizzari.—p. 105.
Histophysiological Reaction of Endocrine Organs and Testicle of Rana Esculenta L. to Chorionic Gonadotropins: Preliminary Histophysiological Observations. L. Nobili.—p. 111.
Histochemistry of Hypophysis in Pregnancy. A. Gastaldi.—p. 143.

Hyaluronidase in Toxemia of Pregnancy.—Ten women with toxemia of pregnancy were given from 2,000 to 4,000 viscosity units of hyaluronidase. The arterial pressure dropped in all, albuminuria decreased, headache became milder or disappeared, edema was decreased, and a marked euphoria followed. Laboratory tests revealed that the ratio between albumin and globulin had increased, and there was an even greater increase in the ratio between the urine and blood chlorides. The prothrombin (Quick) time also increased in all the patients. In one woman with severe eclampsia who went into coma a few hours after the delivery, eclampsia subsided following intramuscular administration of 3,000 viscosity units of the enzyme, and she left the clinic a few days later. In women with full-term pregnancies labor begins a few hours after the administration of hyaluronidase; in those with puerperal eclampsia there is a greater loss of blood during the delivery. This is ascribed to the decreased blood coagulability, as was indicated by the prothrombin time or to a congestion of the genital organs that follows the administration of hyaluronidase.

Delivery Induced by Hyaluronidase.—Hyaluronidase was administered alone to 28 women with full-term pregnancies to induce delivery and combined with other drugs to 9 women to overcome inertia uteri. A dose of from 250 to 1,000 viscosity units of the enzyme was repeated one or more times after one or several hours. Only one patient was given 3,000 units in a single dose. The activity of the uterus was restored in patients in whom labor was suddenly arrested. The contractions reappeared and became increasingly forceful, while a progressive dilatation of the cervix followed. The effects were more pronounced and quicker to appear in patients in whom the membranes had ruptured prematurely. The motor stimulation of the uterus was achieved also in women who were in their fourth and seventh month of pregnancy and whose fetuses were dead. Hyaluronidase was combined with sparteine and thymophysin for some patients in whom additional stimulation was needed to accelerate the delivery and with lyspasmin for women in whom there was delayed dilatation associated with a tendency to spasm. The results obtained were better than when these drugs are given alone. The author made also some in vitro studies and concludes that the enzyme does not stimulate the uterus directly but exerts its influence on the factors, especially hormonal, that govern labor.

Schweizerische medizinische Wochenschrift, Basel

83:395-418 (April 25) 1953. **Partial Index**

Neural Atrophy of Muscles and Friedreich's Ataxia: Observations on a Bernese Family. P. Stucky and B. Luban.—p. 399.
Relationship Between Sodium Salicylate and Serum Proteins: Paper-Electrophoretic Study. J. J. Scheidegger.—p. 406.
*Fatal Pulmonary Embolism in Course of Treatment with Anticoagulants. W. R. Merz.—p. 407.

Fatal Pulmonary Embolism and Anticoagulant Therapy.—The occurrence of fatal pulmonary embolism is reported in five men and five women treated with anticoagulants for thrombosis. The diagnosis was established by necropsy. Either because the dose of the anticoagulant used was too small or because the treatment was discontinued too early, the thrombus continued to grow without clinical manifestations. Anticoagulant treatment prevents the thrombus from becoming fixed to the wall of the vein, and as a result there were no changes in the pulse and temperature and in the subjective complaints. The thrombus may easily break loose, however, and cause sudden and fatal pulmonary embolism. In addition, unexpected pulmonary embolism or pulmonary infarction may occur when the dose is too small or when the effects of heparin and bishydroxycoumarin (Dicumarol) do not overlap while bishydroxycoumarin is being substituted for heparin, as well as with inadequate prophylactic doses of anticoagulants. *The thrombotic process can be arrested only* by the administration of heparin or substances with a similar effect. Protection against the risk of fatal pulmonary embolism may be provided by the empirically determined minimal dose of 40,000 I. U. of heparin given intravenously in divided doses over 24 hours. As a rule, smaller doses should never be used. For the first 24 hours, when the risk of pulmonary embolism is greatest, doses of 60,000 to 100,000 I. U. are recommended. The also empirically determined minimal duration of treatment with anticoagulants is three weeks, even in patients who apparently seem to respond well to the treatment.

Semana Médica, Buenos Aires

60:473-514 (April 9) 1953. **Partial Index**

Adhesive Chronic Pericarditis in Pick's Syndrome. O. E. Adorni, D. del Valle, D. J. J. Martínez and N. Rouco Oliva.—p. 473.
Toxoplasmosis in Human Beings: First Case in Argentina. R. A. Borzone and P. Lapieza Cabral.—p. 489.
*Placental Grafts: 400 Cases. J. Uranga.—p. 490.

Placental Grafts in Painful Articular Diseases.—The group of 400 patients reported here had chronic rheumatoid arthritis, arthrosis, lumbosciatic syndromes, neuralgia of the brachial plexus, painful shoulder, periarthritis of the shoulder, and similar conditions. The treatment consisted of implantation of desiccated placental grafts and of daily intramuscular injections of a placental extract. The injections were given in a series of 20. Grafting was done between the fifth and seventh day after the injections were begun. Grafting was made under the skin of the abdominal region or near a joint, if only one joint was involved. The effect of placental grafts lasts for two or three months or longer, after which the treatment is repeated if painful symptoms reappear. The results were good in some cases and spectacular in others. The treatment controlled pain in all cases. Local suppuration or hematoma did not occur.

Ugeskrift for Laeger, Copenhagen

115:589-626 (April 16) 1953. **Partial Index**

*Medicamental Treatment of Arterial Hypertension: Preliminary Report on Personal Experiences with Hexamethonium. V. Rønnov-Jessen and V. Bech.—p. 589.
Treatment of Essential Hypertension with Hydergin. P. Bechgaard and L. Paulsen.—p. 600.
After-Examination of Patients Operated on for Hemorrhoids. M. Felbo and O. Kofod.—p. 605.
Rupture of Tendon of Long Head of Biceps Muscle. A. Astrup.—p. 608.

Treatment of Arterial Hypertension with Hexamethonium.—Rønov-Jessen and Bech's routine treatment with hexamethonium now consists of combined oral and parenteral administration of the drug. They believe that hexamethonium should be used only in severe malignant hypertension. It should be used only with close supervision when there is severe impairment of renal function, and it must be used only in persons of normal intelligence because of the cooperation called for on their part. Treatment should probably always be started in a hospital, as it may at times be difficult to establish a suitable dosage. A rigid age limit is not set; the patient's physiological age must be considered primarily. Seventeen *patients were treated for from two to eight and a half months.* In all patients the blood pressure measured in the erect position was reduced during the day, the systolic pressure by an average of about 60 mm. and the diastolic by 30 mm. In 14 cases the subjective symptoms of hypertension abated during the treatment. In 10 patients under treatment for three months or longer there was improved capacity for work, and in some there was improvement in the objective symptoms. At the start of treatment undesired effects were usually seen, including constipation, vertigo, and impaired vision; *most of these* effects disappeared within a month or two. The authors say that, while hexamethonium has introduced a significant epoch in the treatment of hypertension, it is not an ideal hypotensive agent, as the treatment is too complicated.

Wiener klinische Wochenschrift, Vienna

65:333-348 (May 1) 1953

Malignant Tumors of Sympathetic Nerve Cell Origin in Childhood. F. Ernst and E. Wiesner.—p. 336.
Electrical Stimulation of Gastrocnemius Muscle and Venous Circulation. F. Kaindl, F. Schuhfried and B. Thurnher.—p. 340.
*Antihemophilic Plasma Therapy for Severe Hemorrhage in Hemophiliacs. R. Jonas, H. Gross and H. Huber.—p. 341.

Antihemophilic Plasma Treatment of Hemophiliacs.—Irradiated human antihemophilic plasma produced in the United States was used in the treatment of severe hemorrhage in three hemophiliacs, aged 5, 15, and 20 years respectively. The 5-year-old boy bled after tonsillectomy; the child was given blood transfusions, vitamins K and C, and hemostatic agents for 15 days but oozing continued. On the 16th day the patient was given 50 cc. of irradiated antihemophilic plasma with 55 cc. of blood intravenously. An additional 250 cc. of the irradiated antihemophilic plasma was given in divided doses of 50 cc. at 12 and 24 hour intervals. Bleeding was definitely arrested, and the patient was discharged on the 28th postoperative day. The same amount of 300 cc. of the irradiated antihemophilic plasma was required for the arrest of the bleeding in the 15-year-old patient with massive and prolonged renal hemorrhage. Administration of 100 cc. of the antihemophilic plasma adequately controlled a moderately severe renal hemorrhage in the 20-year-old patient. The authors consider the irradiated human antihemophilic plasma the safest and most reliable agent for control of severe hemorrhages in hemophiliacs provided it is given in doses of 50 cc. at most 12 hours apart and whole blood transfusions are also given for the replacement of the blood loss. Except for the locally applied Topostasin, a proprietary thrombin preparation obtained from purified cattle plasma, the authors consider all other hemostatics ineffective, whether applied locally or parenterally, in small or large doses.

BOOK REVIEWS

Physiological Foundations of Neurology and Psychiatry. By Ernst Gellhorn, M.D., Ph.D., Professor of Neurophysiology, University of Minnesota, Minneapolis. Cloth. $8.50. Pp. 556, with 107 illustrations. University of Minnesota Press, Minneapolis 14, 1953.

The author, a leader in the field of neuropsychiatric research, is fully competent to collect, assess, and discuss critically the physiological foundation of research on the mechanisms underlying regulation of neuronal activity. His monograph covers the various factors of regulation, the physiology and pathology of movements, the basis of consciousness, autonomic physiology, and the applications of our knowledge to an understanding of schizophrenia and the basis for shock and carbon dioxide therapy, as well as a discussion of autonomic tests in mental disorders. Fully documented and illustrated, with an extensive bibliographic index, the text is fundamental for the specialist in laboratory investigation and clinical experimentation. Neurohumors and neuropharmacology, neuroendocrine action, homeostasis, and similar topics are discussed in an authoritative and comprehensive manner. Clinical and experimental literature is carefully integrated, presenting a clear picture of rapid advances in the last few years. The style of writing is clear, and the evaluations are distinctive. The book is highly recommended.

The Inside Story: Psychiatry and Everyday Life. Compiled under direction of Fritz Redlich, M.D., Chairman, Department of Psychiatry, Yale University School of Medicine, New Haven, Conn. Text written by June Bingham. With collaboration of Jacob Levine, Ph.D., Chief Clinical Psychologist, Veterans Administration Hospital, Newington, Conn. Cloth. $3.75. Pp. 280, with illustrations. Alfred A. Knopf, Inc., 501 Madison Ave., New York 22, 1953.

In psychiatry more than in any other field of medicine there has been an urge to advise the layman of the developments and problems of the field. This is unusual, because in all other disciplines the orientation is the opposite and is primarily directed toward making doctors more aware of patients and their problems. Many approaches have been employed by psychiatrists in this indoctrination process. There have been biographies, popular reprints of basic works, lectures, psychiatric novels, and even statistical studies of sexual behavior. It is strange that a cartoon analysis has not been used before this time. This is a unique approach and is especially valid, for the gifted and clever cartoonist presents a skilled layman's analysis.

The authors have chosen a series of cartoons and arranged them in an orderly pattern from the viewpoint of mental mechanisms and interpersonal relationships, with a correlated text. The connection between cartoon and text is left to the reader, but the relation is obvious. The cartoons are well chosen and cover many old favorites, including cartoons of psychoanalysis from *The New Yorker*. It is disappointing that the works of Steig and of Lichty, both of whom bring a rare penetration with cynical overtones to the psychological foibles and abnormalities of man, were omitted. The authors, however, were unable to include all the cartoonists, and it was impossible to obtain permission from some. It is likely that omission of some of the favorites was on this basis. With psychiatry developing more and more a holistic approach and tending to include international relationships, it is unfortunate that some political cartoons, such as those of Herblock, could not be included. Many of these classics, however, have uncovered or pointed out traits of prominent people, and the inference of mental mechanisms by inclusion in this book would be too obvious and perhaps repugnant. While it is considered proper for cartoonists to lampoon prominent citizens, it would not be proper to analyze these same lampoons from a psychiatric standpoint.

The text of the book is a sort of lexicon with a series of definitions and elaborations, often illustrated by informal case reports. There is a good over-all exposition of psychiatry that has a tendency to keep a balance among the many facets of psychiatric thinking. The text is enhanced by quotations from thinkers in many fields, including St. Augustine, Shakespeare, Freud, George Bernard Shaw, and Disraeli, as well as contemporary psychiatrists.

The content of the text follows the same pattern as the cartoons. The content cannot be, nor was it meant to be, a textbook of psychiatry. This book is primarily for the layman, and the physician needs to be familiar with it if he treats patients who have studied it. Careful reading of the text should lead to little misapprehension regarding mechanisms involved in normal and abnormal people. The occasional easy handling of moral matters in a book written primarily for laymen is a cause for some concern. This, of course, is not a special problem in this book, but rather in much psychiatric thinking. The book follows the concept that if most of the people do something, it is normal. There is no sharp distinction between average and normal. If this is so, head-hunting or cannibalism should be considered normal and acceptable in certain aborigines; therefore, was it not improper to discourage the cannibals and the head-hunters, since they were doing the "average" or "normal" act for their civilization?

There are a few ambiguities in the book; for example, in the last chapter the authors state that psychiatrists, through their treatment of patients and in their books for the general public, attempt to dethrone the old king (the unconscious conscience) and encourage the average person to govern himself consciously. The psychiatrists do not know what the result will be; they only have faith. In another paragraph, the authors point out that antisocial personalities and character neuroses are attributable to "atrophy of the conscious and unconscious conscience." Could "atrophy" not be induced?

This easily readable book, which touches only lightly on the whole field of psychiatry, is clearly and concisely presented for the layman. Most important, it employs a medium well known to all laymen, namely the cartoon, and from this medium develops an understanding of psychiatry; therefore, it serves a very useful purpose.

X-Ray Sieve Therapy in Cancer: A Connective Tissue Problem. By Benjamin Jolles, M.D., D.M.R., Consultant Radiotherapist, Physician i/c Radiotherapy Department, General Hospital, Northampton, England. With foreword by Sidney Russ, C.B.E., D.Sc., F.Inst.P. Cloth. $6. Pp. 192, with 51 illustrations. Little, Brown & Company, 34 Beacon St., Boston 6, 1053.

The author of this little volume has been interested in sieve therapy for over 10 years and is thoroughly qualified to write on the subject. The book is divided into three parts. The first concerns the importance of connective tissue in tumor genesis and in resistance to tumors and destruction and resolution of malignant growths treated by ionizing radiation. The second part discusses the importance of the treatment of a tumor, the phases of the human genesis, and the importance of producing structural changes that will lead not only to the resolution of a growth but also to alterations that affect the tissues in which the tumor arose. The third part concerns indirect radiation effects and principles and application of the sieve in radiotherapy.

There have been many comments on sieve therapy, some favorable, others not. The author has described in a meticulous manner the importance of accuracy in preparing a patient for treatment, daily observation of the patient, and other factors concerned with proper radiotherapy. Even if the sieve therapy was a failure, the methods used by the author and his careful attention to the patient are very important.

Every radiologist should read this volume even though he does not use the method. Unless special care is used with the method, it would seem unwise to employ it. The book reviews 54 patients who were treated by the author, and it is a guide for employing the sieve method. The work is published on

---

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

fine paper, with good print and excellent illustrations, and it can be recommended for every radiologist interested in therapy.

Anatomy of the Autonomic Nervous System. By G. A. G. Mitchell, O.B.E., T.D., M.B., Professor of Anatomy and Director of Anatomical Laboratories in University of Manchester, Manchester, England. Foreword by Sir James Learmonth, K.C.V.O., C.B.E., Ch.M., Regius Professor of Clinical Surgery and Professor of Surgery in University of Edinburgh, Edinburgh. Cloth. $10. Pp. 356, with 131 illustrations. [Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2]; E. & S. Livingstone, 16 and 17 Telviot Pl., Edinburgh 1, 1953.

This new treatise on the sympathetic nervous system is a pleasure to read; it is well and clearly written, the illustrations are good, and a thorough bibliography and a complete index are included. A brief historical survey introduces the subject and sets the style of the book. The reader will be particularly impressed by the refreshing treatment of the autonomic system as part of the entire nervous system and not as a separate system. The author shows in a clear, detailed manner how the sympathetic and parasympathetic nervous systems are integrated with the central nervous system and the peripheral somatic nerves. He is thoroughly conversant with the literature and has documented each point carefully. This book can be recommended to specialist and beginner alike; both will find it informative, accurate, and interesting.

A Policy for Scientific and Professional Manpower: A Statement by the Council with Facts and Issues Prepared by the Research Staff. By National Manpower Council. Cloth. $4.50. Pp. 263, with 4 illustrations. Columbia University Press, 2960 Broadway, New York 27; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, 1953.

This volume is a publication of the National Manpower Council, which was established at Columbia University in 1951 under a grant from the Ford Foundation. The Council was founded to study manpower problems, particularly those concerned with the quality of personnel. This is its second report; the first, "Student Deferment and National Manpower Policy," was published in April, 1952.

This study contains policy recommendations in part 1. The discussion "Facts and Issues About Scientific and Professional Manpower" comprises part 2. While general statements about higher education receive some attention, emphasis is focused on physicians, engineers, physicists, and teachers, as representative of the broad group included in professional and scientific manpower. The increase in the number of occupations classified as professional or scientific is discussed, and changes that have occurred in professional educational requirements are reviewed. The volume covers such varied topics as the economic factors affecting education, employment markets, and the potential of higher education as compared to actual achievement. The study is, of course, particularly concerned with the role of these persons in the emergency situation.

The four professional groups are considered in the light of supply and demand, characteristics of each profession, and patterns of employment. A chapter devoted to the role of physicians includes a survey of the data used in estimating shortages by 1960 and an excellent discussion of the shortcomings of the statistical procedures. Herbert Klarman, Ph.D., who prepared the original draft of this chapter, did not note that the total number of physicians in 1960 is likely to be 245,000 instead of 233,000. The difficulties inherent in attempting to make any real estimate of the number of physicians needed in our economy are recognized, and the importance of quality rather than quantity is emphasized: "To increase the number of doctors trained at the expense of the quality of the training would be worse than useless." The underlying thesis of the chapter seems to be that there must be a doctor shortage, although there is no way of proving or measuring it. This chapter is, therefore, a strange combination of logic and whimsy.

The report makes some specific suggestions for the future of the medical profession, including more and larger medical schools, more efficient use of physicians by the armed forces, and increased cooperation in hospitals, health centers, and clinics among members of the profession (a suggestion taken from the report of President Truman's Commission on the Health Needs of the Nation). Some of the difficulties in implementing the suggestion for more medical schools and an increase in the number of medical students at established schools are recognized. Among those noted are the problem of cost and the hindrances to the expansion of facilities if quality of education is to be maintained. The "shortages" in state hospitals and public health departments are "largely, though by no means entirely, an economic problem. Low salaries . . . lack of professional prestige . . . unfavorable working conditions. . . ." The "obvious" conclusions reached do not follow from the information presented.

Aside from the inclination, throughout the book, to insist that shortages exist, whether proved or not, the Council has made a valuable contribution to study of the professions and American education. It has corrected one of the most glaring omissions of previous studies: the medical profession is studied in the context of the requirements of our society for other professional and scientific personnel, and not in the vacuum of medicine alone. Apparently the "shortage" of physicians is not the most serious problem.

The final chapter, "Manpower Policies in a Democratic Society," is a particularly penetrating discussion of the formation of such policy in a society that gives the individual freedom of choice of occupation. There are strong limitations on direct action: "The major governmental influence upon the supply of scientific and professional manpower is a result of educational measures of various kinds."

The shortcomings of any forecasts of future demand in relation to progress in technology and science, future changes in the roles and responsibilities of auxiliary personnel in any of these fields, problems raised by the emergency sacrifice of long-term goals, and the need for the best use of highly trained manpower in a wartime society are reviewed. The conclusions emphasize the importance of more basic information on scientific and professional manpower and the need for better methods of predicting short and long-term requirements. This study is particularly useful in combining all the information available; for example, table 1 (page 44), "Professional, Technical and Kindred Workers in the United States, by Major Fields, 1870-1950," and the accompanying graph showing the percentage relationship. Beyond this useful summary of data the study does little more than point up the necessity for more study.

Differentialdiagnose innerer Krankheiten: Eine kurzgefasste Darstellung für Ärzte und Studierende. Von Dr. Robert Hegglin. Second edition. Cloth. 55 marks. Pp. 556, with 250 illustrations. Georg Thieme, Diemershaldenstrasse 47, (14a) Stuttgart-O; agents for U. S. A., Grune & Stratton, Inc., 381 Fourth Avenue, New York 16, 1953.

The second edition of this brief text on differential diagnosis appears just a year after the first edition. New sections on headache and pain in the extremities have been added. There is no change in the general principle of discussing differential diagnosis from the viewpoint of the general practitioner and on the basis of "presenting" symptoms and signs rather than diseases. A preliminary chapter discusses this viewpoint in detail and is followed by sections on anemia, hemoglobinuria, the hemorrhagic diathesis, simple fever, febrile diseases with meningeal symptoms, febrile diseases with joint pains, and the significance of single symptoms in diagnosis of febrile diseases. There are also sections on headache, dyspnea, cardiac arrythmias, electrocardiographic changes in myocardial damage, cyanosis, thoracic pain, hypertension, and renal hypertension. Pulmonary diseases are discussed, including tuberculous infiltration, primary pneumonia, secondary pneumonia, and nontuberculous and nonpneumonic diseases such as atelectasis, echinococcosis, tumors, pneumonoconiosis, and silicosis. The next chapters cover bilateral, infectious, and neoplastic enlargements at the hilus of the lung; predominantly one-sided hilus enlargements; and lesions causing mediastinal enlargement. Other subjects include causes of pain in the abdomen, diarrhea, jaundice, splenomegaly, urinary conditions (hematuria, albuminuria, pyuria, and cylindruria), causes of edema, pain in the extremities and that originating in the spinal column, and causes of loss of consciousness.

Every main section is followed by a bibliography, mostly German, but also containing references to English, French, Scandinavian, and American literature. There are numerous excellent graphs and black and white illustrations, many of which are reproductions of roentgenograms, with occasional pictures of patients showing attitudes characteristic of ailments producing postural changes. The color illustrations are excellent. The text is followed by a good subject index. The book is attractively bound in blue cloth and is smaller and considerably thinner than the standard American textbook. The paper is of excellent quality, and the typography is clear cut. The author, in general, has succeeded in his aim of producing a brief work on a broad subject. In some sections the descriptions of disease are too brief. In the discussion of coccidioidomycosis, for example, it is not made entirely clear that valley fever is the preliminary stage and that some patients later have skin lesions simulating blastomycosis; that in diverticulosis some patients may have severe hemorrhages; that in trichinosis the larvae may be recovered from the blood and spinal fluid; that pericarditis is often painless; and that cervical ribs may produce intermittent claudication on use of the arms or sensory changes in the hands. These, however, are minor faults, and the book should be helpful to the general practitioner as a reference in doubtful diagnoses.

Clinical Endocrinology. Volumes I and II. By Lewis M. Hurxthal, M.D., F.A.C.P., Head of Department of Internal Medicine, Lahey Clinic, Boston, and Natalija Musulin, B.S., M.D. Cloth. $24 per set. Pp. 749; 751-1599, with 629 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1953.

These impressive volumes are not the expected cyclopedic textbook but are an outline of endocrinology. An outline may well serve its purpose as an introduction or recapitulation of details elaborated in conventional language. Material presented in outline must of necessity appear dogmatic (which is undesirable in so labile a field as endocrinology); therefore, controversial topics cannot be presented in an intelligible manner. Owing, however, to the wide clinical experience of the authors and their thorough coverage of the vast literature, the disadvantages intrinsic in an outline presentation have been reduced to a minimum.

The subject of endocrinology has been covered adequately and is organized in a masterly manner. The material is sound and up-to-date, although the literature and text of the preclinical sections lack the quality of the clinical sections. The book is presented in a well-printed, easily read format. Illustrations and case reports that are appended to the chapters are, for the most part, well chosen and original and constitute one of the most valuable features of the book. Many references are also included, but there is an apparent bias toward the older literature, with few references to that of the last decade.

The material included in these volumes would have been easier to comprehend in the conventional text form, with perhaps certain portions retained in outline form. In their present arrangement the volumes will be of greatest value to the endocrinologist who desires to refresh his memory on a certain subject. The general reader, however, will probably find the outline presentation less satisfying than a conventional text.

Biochemistry of Disease. By M. Bodansky and O. Bodansky. Second edition revised by Oscar Bodansky, M.D., Ph.D., Professor of Biochemistry, Sloan-Kettering Division, Cornell University Medical College, New York. Cloth. $12. Pp. 1208, with illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1952.

The first edition of this book appeared in 1939. It was designed neither as a textbook of biochemistry nor as a manual of laboratory procedures but, rather, as a compendium of the biochemical aspects of various diseases. The second edition follows the general pattern of the first, but the text has been expanded and revised in the light of recent advances in clinical biochemistry. A useful addition is an appendix of mean normal biochemical values together with a discussion of statistical evaluation of the normal range. The book is recommended to physicians and laboratory workers desiring an understanding of the biochemical processes in various pathological states in order to apply intelligently the many diagnostic and prognostic laboratory procedures currently available.

Chemical Physiology of Contraction in Body and Heart Muscle. By A. Szent-Györgyi. Cloth. $4.80. Pp. 135, with 29 illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1953.

In a work intended for the biologist, Szent-Györgyi outlines his present theories on muscle with regard to composition and structure, chemical and physical mechanisms of contraction and relaxation, and effects of such factors as temperature, ions, drugs, and regulators. Cross striated body muscle, heart muscle, and uterine muscle are considered. According to the author, the book "is not offered as a comprehensive and objective review; it is the presentation of the problem, as I see it, after fourteen years' acquaintance with muscle." The material is well organized and presented, and the printing is excellent. There is no index, probably because of the ephemeral nature of such a theoretical work.

Heart and Circulation: Diagnosis and Treatment. By Meyer Sclar, M.D., F.A.C.C., Chief in Cardiology and Senior Attending Physician, Unity Hospital, Brooklyn, New York. Assisted by Jacob Melnick, M.D. Cloth. $7.50. Pp. 357, with illustrations. Froben Press, Inc., 1776 Broadway, New York 19, 1953.

This manual on diagnosis and treatment of cardiovascular disease is original in its approach to the subject. The basic concepts of cardiac physiology and pathology and the clinical course and therapy of various syndromes are presented from the author's experience in practical cardiology. This personal experience is also reflected in the subjective tone of the book, which overstresses the value of certain aspects, such as that of the trigger mechanism of cardiac pain, while other important practical problems, like the Adams-Stokes syndrome, are dealt with completely inadequately with regard to mechanism and treatment. Little space is devoted to chronic cor pulmonale, and the author fails to mention the entity of acute nonspecific pericarditis, while, on the other hand, mitral surgery is described in minute technical detail. Some of his statements will hardly be approved by experienced cardiologists, e. g., the application of the term myocardosis, the statements about the relative incidence of right and left bundle branch block, and the views concerning the use of hypertonic solution of glucose for severe dyspnea.

The typography of the book is good, the language is clear, and the illustrations are well selected, except for most of the electrocardiograms, which are poor technically and with regard to modern standards. This manual is recommended to the practitioner for orientation in the rapidly expanding field of cardiology and as a guide to cardiovascular diagnosis.

Die neuzeitlichen Brustwand- und Extremitäten- Ableitungen in der Praxis. Von Prof. Dr. Herbert Reindell, Oberarzt der medizinischen Universitätsklinik Freiburg i. Br., und Dr. Helmuth Klepzig, Assistent der medizinischen Universitätsklinik Freiburg i. Br. Mit einem Geleitwort von Prof. Dr. Ludwig Heilmeyer, Direktor der medizinischen Universitätsklinik Freiburg i. Br. Second edition. Cloth. 24.60 marks. Pp. 188, with 70 illustrations. Georg Theime, Verlag, Diemershaldenstrasse 47, (14a) Stuttgart-O; agents for U. S. A., Grune & Stratton, Inc., 381 Fourth Ave., N. Y. 16, 1953.

This German monograph on multiple chest leads and aV limb leads has been thoroughly revised and expanded. The text includes a discussion of the normal precordial electrocardiogram, its normal variations, and all important abnormalities, and has been rearranged and enlarged with a number of new and instructive illustrations. Although only a few actual vectorcardiograms and schematic drawings of abnormal vector loops have been added, the interpretation of the electrocardiogram is now largely based on vectorial concepts, in conformity with recent trends in clinical electrocardiography. Influenced by newer German work, the terminology has been partly changed or adapted. The authors maintain their concept of two types of ventricular strain, one causing simple delay of ventricular depolarization ("Verspaetungskurve") and the other causing, in addition, alterations of repolarization ("mit Funktionsstoerung"). The necessary amplification of illustrations has been made in this chapter but unfortunately has been omitted in the section on bundle branch system block. The printing and the quality and reproduction of illustrations are excellent. More than 100 recent references have been added. This monograph can be recommended as an up-to-date survey of clinical electrocardiography.

QUERIES AND MINOR NOTES

THE INTESTINAL FLORA

To the Editor:—*How can the bacterial flora of the intestinal tract be changed? Please outline a procedure for accomplishing this. I know aureomycin may suppress or inhibit the bacterial flora and thus allow Monilia (Candida) infection to flourish. Is the intestinal bacterial flora constant?*

R. J. Martoccio, M.D., Utica, N. Y.

Answer.—The intestinal flora can be changed either by administration of drugs or by modification of the diet. The former includes administration of the locally acting sulfonamides, such as phthalylsulfathiazole (Sulfathalidine) or succinylsulfathiazole (Sulfasuxidine), and antibiotics, such as oxytetracycline (Terramycin), chloramphenicol (Chloromycetin), and aureomycin. The latter includes the use of a lactovegetarian diet supplemented by lactose. Except for specific purposes, such as the elimination of Eberthella (Salmonella) typhosa and Shigella dysenteriae from the intestinal tract or preoperative preparation for intestinal resection, qualitative or quantitative changes in the intestinal flora by the use of drugs are of dubious value. In fact, they may be distinctly harmful, as is the case with the prolonged use of antibiotics that interfere with the bacterial synthesis of B complex vitamins or that favor the development of moniliasis. The intestinal flora is inconstant, and its composition depends on a number of factors, such as the degree of gastric acidity and whether the diet is vegetarian or includes meat. The intestinal flora of a breast-fed infant consists largely of Lactobacillus bifidus. With a mixed diet, the upper small intestinal flora of a normal adult consists chiefly of enterococci. Farther on toward the large intestine, the flora becomes more complex and includes coliform organisms, staphylococci, and various gelatin-liquefiers. In the colon, in addition to these organisms, enterococci and anerobic spore bearers are found. These are fairly constant in man, but many other types, too numerous to mention, are encountered in smaller proportions. The diet and the number of organisms ingested largely determine the type of intestinal flora in the healthy human.

EXPIRATION DATES ON BIOLOGICAL PRODUCTS

To the Editor:—*Biological products, such as vaccines, antibodies, and the antibiotics, are labeled with expiration dates. What precisely do these expiration dates mean, and how are they determined? Can the products be used after the expiration date, if kept at optimum storage temperature? If there is a loss of potency, can the dosage be increased proportionately, and, if so, what method would be used to determine the increase?*

M.D., Kentucky.

Answer.—Manufacturers of biological products sold in the United States are obliged to comply with the requirements of the National Institutes of Health of the United States Public Health Service. The expiration dates on biological preparations vary with the different biologicals, and their purpose is to indicate the date beyond which the contents cannot be expected beyond reasonable doubt to yield their specific results. The expiration dates are established by the National Institutes of Health on the basis of experimental investigations and practical experience. More detailed information may be found in "Dating Decision Number 10," issued May 15, 1947, by the United States Public Health Service, which contains "The Dating Periods Recommended for Those Biological Products Specified in the Biologics Section of the Public Health Service Act of July 1, 1944." This pamphlet, known as Miscellaneous Publication No. 38, is obtainable from the Superintendent of Documents, United States Government Printing Office, Washington 25, D. C., for 5 cents. The expiration dates of antibiotics are determined in compliance with the regulations of the United States Food and Drug Administration. They vary with the different antibiotics and with different dosage forms of the same antibiotic and are intended to signify the date beyond which the product should not be used. With antibiotics, as with biological preparations, it is important that the recommended storage conditions be observed. Some degree of potency is probably retained in all such products even after the expiration date, provided they have been stored in accordance with recommended requirements, and although the use of such out-dated products may be necessary in emergencies, it is advisable wherever possible to employ preparations bearing expiration dates that have not been passed.

ALLERGY AND SINUSITIS

To the Editor:—*During the winter acute sinusitis develops in a patient, which at times is followed by formation of nasal polyps, which subside after several weeks of symptomatic treatment. Intradermal tests for allergy to dust, feathers, and a variety of foods gave positive results. Results of tests for allergy to pollens and other inhalants were negative. 1. Is it necessary to eliminate these allergens if, on exposure to them, no clinical symptoms are produced? 2. Is desensitization with dust and feather extracts of value in preventing the nasal symptoms? 3. For how long should such injections be given? 4. What relation have foods causing positive reactions in intradermal tests to clinical sensitivity? 5. Are antihistamines of value in treatment of allergic sinusitis? Which one is recommended for use by ambulatory patients?*

M.D., New York.

Answer.—1. Since the patient had positive intradermal test reactions to house dust and feathers, exposure to these should be prevented as much as possible. The use of rubber pillows and rubber mattresses or dust-proof mattress covers should be urged. The bedroom should be as dust-free as possible, and no rugs or draperies should be permitted in the room. Household pets should be removed. The living room should be kept "spic and span," and any loose pillows that may contain feathers or kapok should be removed. Use of a good vacuum cleaner is essential. 2. Hyposensitization to feathers and dust extracts is of value in preventing or lessening nasal symptoms. 3. The injections should be given as long as the patient has symptoms. At the start, it is customary to give the injections twice a week, later once a week, and then once every two weeks. If the symptoms disappear for at least a month, the injection therapy should be discontinued, but it should be resumed if symptoms return. 4. In recent years, it has become evident that intradermal tests with food extracts are not nearly so reliable as similar tests with inhalant materials, e. g., dog hair or house dust. Some allergists have gone as far as to stop performing food intradermal tests, but it is probably better to continue carrying out these tests with important foods. Certain food extracts, such as those made from spices, cause many positive reactions; these tests should be avoided. Positive results in tests for the important foods should be followed up clinically, i. e., every food that produces a reasonably strong reaction should be removed from the diet for a week or two. These foods should then be given separately in large quantities at weekly intervals, when the patient is feeling good, to determine whether symptoms will result. If the result of such a clinical test is negative, the food can be eaten; if positive, its use should be avoided. 5. Antihistaminics are probably as valuable in allergic sinusitis as they are in allergic rhinitis, since the lining of the nasal membrane is continuous with that in the nasal sinuses. There are many available antihistaminics on the market. Those that have a strong sedative action should not be used during the day, but they are useful at night, be-

---

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

cause they help the patient obtain a good sleep. Those that have milder sedative action, e. g., thonzylamine (Neohetramine), are recommended for daytime use; their use is especially important in patients who drive cars or who work in dangerous occupations in which drowsiness might be a factor in causing an accident.

SUDDEN DEATH

To the Editor:—*During the past six months I have had three elderly patients who died suddenly in the hospital. Two were recuperating from influenzal pneumonia, and the other had had episodes of bronchial asthma for years. The two with influenza had irregular heart beats when they were admitted, and their families were cautioned about the possibility of sudden death. The asthmatic patient had ectopic beats and had been treated for "heart trouble" for years. To my knowledge, none of these patients had ever had angina pectoris or a coronary occlusion. All three died in less than a minute. One did not even move, and his neighbor in the next bed did not know that he had died. What should be reported as the cause of death in these three patients?*

M.D., North Carolina.

Answer.—Whenever a patient dies suddenly and unexpectedly, the cause of death is a matter of speculation if no autopsy is done. All of these patients had circulatory disease, so it may be assumed that death was produced by some circulatory accident. The commonest type in the older age group is coronary occlusion with myocardial infarction. If the onset of ventricular fibrillation is immediate, death occurs almost instantaneously. This has been found to be the cause of death in many instances in which persons have died while asleep. In addition to this, it may be assumed that the patients with irregular rhythm had auricular fibrillation. The discharge of a thrombus from the fibrillating auricle could produce a coronary embolism or a pulmonary embolism, with immediately fatal outcome. In this age group, the occurrence of massive cerebral hemorrhage is a possibility. Rupture of an aortic aneurysm, either thoracic or abdominal, should be considered. A dissecting aneurysm that perforates into the pericardial sac and produces cardiac tamponade may cause sudden death. The lack of a history of these conditions does not preclude any of them as possible causes. Indeed, thrombi are known to form more readily during episodes of acute infection and periods of rest in bed.

NASAL IRRITATION IN A BAKER

To the Editor:—*A 28-year-old man, a baker, has for two years noticed almost constant burning and irritation of the nasal mucous membranes, with occasional bleeding. It is his opinion and mine that the flour is an irritant to these membranes. When he is away from work, the nasal symptoms improve. He has had no previous allergies, and skin tests for wheat give negative results. There is no itching, coryza, or sneezing. The patient has been advised to use a respirator. I have considered use of a silicone spray but do not know if such a preparation exists. Please advise proper treatment.* *M.D., Wisconsin.*

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—If the flour is a direct irritant and the patient's nose is normal, it would be expected that his fellow workers would also be affected. If this is not the case, some local "weakness" or susceptibility of his nasal mucosa, such as may depend on a chronic infection or a deformity from a deviated septum, should be considered. Allergy dependent on antibodies to wheat localized in the nasal mucosa is possible, even though skin tests continue to give negative results. Application of a drop of extract of whole wheat in a strength of about 0.01 mg. of nitrogen per milliliter to the lower turbinate on one side, with application of another drop in a strength of 0.1 mg. of nitrogen per milliliter if no reaction is observed within 20 minutes, may give useful information. If the extract is potent and produces positive skin reactions in known wheat-sensitive persons and if it fails to cause a reaction in this patient, allergy could be ruled out. The absence of sneezing, a discharge, and itching argues against allergy. Local treatments are not advisable for, although they may help at first, they may act as irritants later and cause additional harm. To prevent contact by use of a mask is the safest and best procedure. If allergy can be proved, specific desensitization by injections of wheat extract may be worth trying, but the results cannot be guaranteed. The man may have to change his job.

Answer.—Mechanical irritation from flour incrustation on nasal mucous membrane is a recognized disorder. Some flours contain bleaches or trace additives as improvers, calcium acid phosphate being an example of the latter. Some of these ancillary agents are irritants. At this time, silicone sprays for the nasal passages cannot be recommended, although silicone protective creams applied to the skin may possess some virtues. These silicones are only slightly soluble, so that any spray may contain solvents that would be distinctly irritating to mucous membranes; the possible solvents include benzene, carbon tetrachloride, acetone, and ethyl ether. Coatings of silicone on tissues are persistent, although chemical solvents make removal easy. While no respirator will fully protect a worker sensitized to flour, exposure will be distinctly lessened. The wearing of respirators that protect against toxic dust may be onerous, but in this instance the use of any respirator approved by the United States Bureau of Mines for protection against nuisance dust will aid greatly in diminishing exposure. Allergy to flour among bakers, while known, is a rarity. Due consideration should be given to the possibility of other causes.

TETANUS

To the Editor:—*How effective is tetanus toxoid in preventing tetanus when administered soon after injury? I have heard that active immunization proceeds rapidly enough to obviate the need for passive immunization with tetanus antitoxin. If so, how early should tetanus toxoid be given?*

W. D. Chipman, M.D., Los Angeles.

Answer.—If the possibility of tetanus infection is present after an injury, the administration of tetanus antitoxin is always indicated for a person who is not immune. Under such circumstances, tetanus toxoid should never be considered a substitute for tetanus antitoxin. Even in the case of a person who is known to have been actively immunized and for whom a "booster" dose of tetanus toxoid would seem to be the only requirement for protection, tetanus antitoxin is sometimes administered also, if the wound is of a serious nature or if there has been delay in prophylactic treatment.

VARIED HYPERTENSION WITH ARTERIOSCLEROSIS

To the Editor:—*A 63-year-old white man was examined routinely for pensioning purposes. His only complaint was a chronic cough. Examination revealed grade 2 retinopathy, some crackling rales at the lung apex posteriorly and anteriorly, a vital capacity of 73%, and a grade 2 systolic murmur in the aortic area. The blood pressure was 160/70 mm. Hg in the right arm, 90/70 mm. Hg in the left arm, 234/90 mm. Hg in the right leg, and 155/90 mm. Hg in the left leg. The oscillometric index was 8 in the right arm, 2 in the left arm, 8 in the right leg, and 3½ in the left leg. The spleen was questionably palpable. A grade 3 bruit and thrill in the left groin overlying the femoral artery were noted, and a Babinski sign was elicited in the left foot. Roentgenograms of the skull showed no abnormalities, and chest roentgenograms showed minimal tuberculosis and a heart normal in shape, size, and position. Results of all laboratory studies were within normal limits. The sputum was negative for acid-fast organisms. I would appreciate an explanation of this patient's bizarre hypertension.*

Louis Cohen, M.D., Topeka, Kan.

Answer.—While it is not probable that an exact diagnosis will be made, it seems possible that the problem is basically one of generalized arteriosclerosis. This is suggested by the presence of grade 2 retinopathy, a systolic murmur, a positive

Babinski sign, and a wide pulse pressure. The presence of arteriosclerotic obstruction on the left side is possible though it would be unusual. The bruit and thrill in the left groin suggest the presence of a dissecting aneurysm.

DESENSITIZING INJECTIONS

To the Editor:—*Is it safe to permit desensitization injections, for ragweed, dust, and bacteria, for example, to be given by a nurse or technician in the absence of a physician? I refer to the practice of giving the patient a vial of antigen and a schedule of doses so that he can receive the injections in the first aid or medical department of his place of work. If permissible, what precautions should be taken to minimize the possibility of reactions? To what extent is the company maintaining the first aid facilities liable in the event of a serious reaction?* *M.D., New York.*

Answer.—The question of safety in administration of desensitizing injections is a relative one. Serious reactions are at a minimum when the injections are given by competent allergists, but still they may occur in the hands of the most experienced. Desensitization procedures in the hands of nonspecialists are bound to yield a greater incidence of reactions. When given by a nurse who has no supervision, the possibility of the occurrence of reactions is even greater, although if the nurse is intelligent and experienced the danger may not be great. The major problem in allowing a nurse to give injections in the absence of a physician concerns the treatment of reactions, should they occur. Written instructions for the prevention and treatment of reactions should be furnished with the antigen and should include warning about the interpretation of the results of the preceding treatment, the gaging of the dose, and the avoidance of intravascular injections. Antihistamines or ephedrine may be used for mild symptoms and epinephrine for severer symptoms. Aminophylline may be needed. In instances of very severe reactions oxygen administration may be desirable. Obviously, it is in the treatment of serious reactions that the nurse alone may not be adequate. The question of liability undoubtedly is different in each state. It is suggested that the inquirer seek information on this point from medical insurance companies or from legal sources.

DIATHERMY CONTRAINDICATED OVER OR NEAR BONE PLATES

To the Editor:—*I often see patients who previously have had a fracture in which a bone plate and screws of stainless steel or Vitallium (a cobalt, chromium, and molybdenum alloy) were used for fixation of bone and had been left behind. Is it safe to give diathermy treatments to a knee, for example, if a stainless steel plate and screws are present in the femur 2 or 3 in. above the knee joint? Does a focus of increased heat develop at the site of the bone plate when heat is applied by diathermy to the surface of the skin directly over or near the bone plate?* *M.D., Connecticut.*

Answer.—There is a potential danger, both actually and theoretically, that makes it inadvisable to use diathermy to heat areas of the human body that contain metallic implants. In many instances no damage has occurred; however, it is generally felt that, in any condition in which metallic implants are present in or near the area to be treated, use of medical diathermy of any type is contraindicated. This is true also in instances in which metallic sutures or foreign bodies, such as bullets or shrapnel, are present.

SPEECH DISTURBANCE

To the Editor:—*Does inhibition of normal speech expression ever have an allergic basis?*

Walter A. Landry, M.D., Chester, Pa.

Answer.—Except for the temporary aphonia that may result from involvement of the vocal cords in allergy of the larynx, disturbance of speech is not one of the manifestations of allergy

CANCER AND INTESTINAL PARASITES

To the Editor:—*Is cancer of the bowel often or ever complicated by parasitic infections of the intestines?*

Henry Folb, M.D., Trenton, Texas.

Answer.—Any association of parasitic infection of the intestines and cancer of the bowel is more than likely coincidental. Some parasites, such as Endamoeba histolytica, may produce an inflammatory lesion of the colon associated with the development of polyps, which may eventually become malignant. In general, however, intestinal parasites are unimportant as a causative factor in colonic cancer. Some reports in the literature have titles that would suggest a causative relationship, i. e., "Malignant Potentialities in the Chronic Intestinal Lesion Produced by Amoeba Histolytica" (*Gac. méd., Guayaquil* **7**:33, 1952). There is, however, no suggestion of proof that the two are related, and no supporting data is given. A pathologist who had experience in the Philippines with the Philippine scouts reports that he did not see a single case of colonic cancer, although intestinal parasitic infection was common. A Greek pathologist stated that in Greece autopsy was done on many persons who had had intestinal parasitic diseases, but no increase in the incidence of bowel cancer was noted. There is a possible relation between schistosomiasis and cancer; there seems reason to believe that the mechanical and toxic irritations of the ova predispose to cancer of the urinary bladder.

ANESTHESIA FOR CIRCUMCISION

To the Editor:—*In Queries and Minor Notes in* The Journal *May 16, 1953, page 294, in answer to a question about anesthesia for circumcision, it is stated that it is necessary to avoid injection into the corpus cavernosum. This is a quotation from Lundy's "Clinical Anesthesia" (Philadelphia, W. B. Saunders Company, 1942, p. 121), and it is not correct. The best type of anesthesia for circumcision is produced by the injection of 10 cc. of 2% procaine into each corpus cavernosum laterally just below the symphysis pubis. I have used this method for 10 years and have never observed any ill effects. I refer you to an article by Magid and Culp entitled "Ideal Penile Anesthesia Obtained by Injection of Corpora Cavernosa"* (J. Urol. **50**:*508 [Oct.] 1943).*

Edward Palmer, M.D.
6639 Stanley Ave.
Berwyn, Ill.

NO TESTES IN SCROTUM

To the Editor:—*Regarding the query "No Testes in Scrotum" in* The Journal *May 23, 1953, page 375, I wish to direct attention to an article by Dr. E. T. Engle* (Endocrinology **16**:*506, 1932), in which he states, "In the prepubertal intact monkey chorionic gonadotrophin induces tubular growth, descent of testes and an increase in the number of interstitial cells." Cramer* (Endocrinology **21**:*230, 1937) and Dorff* (J. Pediat. **8**:*704, 1936;* J. A. M. A. **110**:*1799 [May 28] 1938) pointed out that chorionic gonadotropin has been shown to be of definite value in the treatment of cryptorchidism when descent of the testes is not impeded by an anatomic obstruction. Dorff notes also in the same article in the* Journal of Pediatrics *that chorionic gonadotropin will produce in some patients not only descent of the testes but also enlargement of the penis. In a survey of the literature, Thompson and Heckel* (J. A. M. A. **112**:*397 [Feb. 4] 1939) estimated that the rate of successful response to chorionic gonadotropin therapy was 61%. In the limited number of patients that I have treated with this drug the results have been good. Exceptionally good results were obtained in a 32-year-old man who was refused admission to the military service because of small, undescended testes and a minute penis. With chorionic gonadotropin treatment, his sexual characteristics became normal to the extent that he was accepted by one of the services.*

Boris S. Herman, M.D.
450 Sutter St., San Francisco.

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 152, NO. 18 CHICAGO, ILLINOIS AUGUST 29, 1953

COPYRIGHT, 1953, BY AMERICAN MEDICAL ASSOCIATION

DIAGNOSIS AND MANAGEMENT OF ABNORMAL UTERINE BLEEDING

Walter J. Reich, M.D., M. William Rubenstein, M.D., Mitchell J. Nechtow, M.D.
and
Jerome B. Reich, M.D., Chicago

Abnormal uterine bleeding is difficult to define. It might be stated that any bleeding that deviates from the usual established physiological cyclic menstrual pattern in an individual person must be considered abnormal; these deviations are mainly those of character, time, frequency, and amount of bleeding. One must remember that spotting is just as important a symptom as frank hemorrhage. It is lamentable to note the number of patients who are slow to seek medical attention when atypical bleeding does occur. In many cases undue waiting has prevented adequate relief and salvage. Advice should be sought at the first sign of abnormal bleeding, and the physician must be on the alert to consider the numerous potential etiological sources, making sure, above all, to rule out causes due to malignancy.

Each patient must be individualized and her history carefully evaluated. A thorough general physical and gynecologic examination, including a speculum, vaginal, rectal, and rectovaginal examination, must be done. One must first consider those sources that arise from an abnormality in the uterus per se. By far, the majority of clinical bleedings arise here, and a pathological diagnosis, as a rule, can be found. In those few patients who do not yield to a "source" diagnosis, constitutional and chronic diseases and functional factors must be looked for. Malnutrition, vitamin deficiencies, metabolic derangements, and intoxications must be considered. Hypertension and cardiovascular disease may give rise to local changes in the endometrial arterioles or produce marked passive congestion with manifest excessive bleeding.

Regardless of the presence of obvious disease in the generative tract, or of other constitutional factors, blood dyscrasias must be ruled out as a cause for bleeding. The leukemias and lymphomas must be considered. At times leukemic infiltration takes place in the uterus. Usually the cause of bleeding in dyscrasias is a dysfunction and/or decrease or complete absence in the number of blood platelets. Thrombocytopenic purpura must be differentiated. Here splenectomy may be the treatment, and, indeed, it may be life saving. Blood cell counts and blood smears, including a platelet determination, must be done in all cases of uterine bleeding.

Perhaps the commoner and more important pathological conditions giving rise to abnormal uterine bleeding can be best detected only when the anatomic locale is kept in mind. With this in mind, one might start an examination from the cervix upward.

BLEEDING OF THE CERVIX UTERI

Squamous Cell Carcinoma.—Squamous cell carcinoma is probably the most important diagnosis from the standpoint of the patient. As a rule, when such a cervical carcinoma bleeds frankly, though not excessively, it has already reached the stage of ulceration and, of course, invasion. Postcoital bleeding or occasional spotting on straining may be the first symptom that brings the patient to the examining table. Many of these patients when interrogated in detail may recall a discharge that started weeks or months prior to the presence of the streak of blood. An acquired discharge should never be disregarded in a woman, since we have seen this to be the first subjective symptom of carcinoma of the cervix.

The patient's age is no criterion in cervical carcinoma; the youngest patient we have seen was 18 and the oldest 80 years of age. A careful speculum examination with adequate exposure of the cervix is important. Cervicovaginal smears for cytological study are most informative. Indeed, were they to be taken routinely, the cervical carcinoma might be detected in its very earliest stage—long before bleeding and long before breakthrough of the basement membrane takes place. All cytological reports should be confirmed by biopsy, and a positive smear report read by an experienced cytologist should not go unheeded.

If the cervical carcinoma has reached an advanced stage, a gross lesion that may be granular, raised, papillary, cauliflower, and ulcerated will readily be seen; however, in those patients where the carcinoma is small or very early, only a small erosion-like area or even a "negative" cervix may be encountered. Here the use of

---

Read before the Section on General Practice at the 102nd Annual Session of the American Medical Association, New York, June 3, 1953.
From the gynecologic departments of the Cook County and Grant hospitals, Chicago Medical School, and Cook County Graduate School of Medicine.

Schiller's iodine stain may assist in determining the sites for biopsy. Sites for biopsy should be at the edge of the lesion or at the squamocolumnar junction. Multiple punch biopsies in each of the four quadrants may be done in the office, or a ring excision or cone type of biopsy may be performed in the hospital. Serial sections for microscopic study are often necessary in the early, small lesion.

It is our opinion, at the present writing, that in the young patient in the child-bearing age, who is desirous of having children, a carcinoma in situ can be treated conservatively and the patient allowed to have one or more children. It is here that the repeat cytological examination and biopsy are most helpful for follow-up. Our management of carcinoma in situ in women over 40, or in younger women with their family quota completed, is total hysterectomy. The only time we do radical surgery for carcinoma of the cervix is in the case that does not respond to irradiation. Except for cases of the types mentioned we use radiation therapy.

Adenocarcinoma of the cervical canal must always be kept in mind. Canal curettage cannot be too strongly stressed. A positive Clark test (blood obtained on probing) may be due only to a chronic endocervicitis but, nevertheless, must direct the physician to seek examination of the cells arising from the cervical canal. To this end, cytological smear and a gentle canal scraping are done. At this point, it is well to state that it is our practice in all diagnostic uterine curettages to also do a canal curettage. The material from each source is placed into two separate bottles of a formaldehyde solution (10% Formalin).

Cervical Polyps.—Bleeding from a cervical polyp is usually slight. It may be spotty in nature, occurring after intercourse, examination, straining, or douching. It may also be brisk and may occur at any time. The bleeding takes place because of the congestive ulcerative changes. A cervical polyp is usually benign. Nevertheless, every specimen must be examined histologically and the rest of the cervix carefully screened by cytological and biopsy study.

Many of these polyps are soft and can be easily removed in the office. To be kept in mind are several factors: 1. A concomitant carcinoma of either the cervix or corpus uteri may be present. 2. There may be more than one polyp. 3. What appears as a cervical polyp may arise not from the endocervix but from endometrium. 4. Since many of the simple soft polyps are associated with chronic cervicitis, electrocauterization is very much in order. Also to be emphasized is the possible coexistence of carcinoma of the corpus in cases where the presenting symptom and sign may be only that of bleeding and the presence of a polyp. A diagnostic curettage must be done. Such procedure is comparable to the teaching of inspection of the rectosigmoid in all cases of rectal bleeding in the presence of hemorrhoids to rule out carcinoma of the bowel.

Ectropion, Eversion, and Erosions.—These are very common conditions and give rise to bleeding because of the capillary tufts that appear on the surface of the ectopic columnar-cuboidal epithelium. Ulceration may be present. At times eroded areas may be very granular and papillary, may be friable, and may give rise to even brisk bleeding; however, spotting is the rule. At all times carcinoma of the cervix must be ruled out. Early carcinoma cannot be differentiated grossly from a simple erosion. Cytological and biopsy studies must be made. After carcinoma is ruled out the treatment of choice, in our experience, is electrocauterization followed by dilatations of the canal. This must include a canal cautery in all cases.

Chancre of Cervix.—In very rare instances, a cervical chancre may bleed slightly. The possibility of diagnosis must be kept in mind and followed by a dark field and serologic examinations.

Senile Changes of the Cervix.—The senile cervix can give rise to an atrophic cervix with vascular changes of the superficial vessels, causing bleeding usually in the form of spotting. Treatment must be aimed at local and hormone (estrogen) therapy and systemic use of vitamins, hydrochloric acid, and proper diet.

BLEEDING FROM THE CORPUS UTERI

Corporal bleeding arises from changes in the endometrium owing to vascular interference directly or to interference with the corporal musculature to properly contract. The latter mechanism, if at fault, can allow for excessive bleeding even in the presence of a normal endometrium, or so-called endometrial physiology. Thus intramural infiltration or new growths, regardless of their benignity, may lead to external bleeding.

When the uterine mucosa is primarily involved by an aberration of growth, the immediate cause for bleeding is one of blood supply changes, i. e., congestion, ulceration, poor blood supply, and strangulation. It can thus be seen that bleeding may occur at any time, or perhaps only more excessively during the menstrual period, or only be a prolongation of the menstrual period. The most important corporal bleeding to be kept in mind, just as in the case of the cervix, is that due to carcinoma.

Endometrial Carcinoma.—The endometrial carcinoma, while it may possibly occur at any age, is usually a lesion of the menopause or postmenopausal age. Our youngest patient was 29 and the oldest 78 years of age. Hence, any spotting or bleeding after the menopause must be considered due to adenocarcinoma of the endometrium until proved otherwise. By the same reasoning, any woman who approaches and goes through her menopause with irregular, stormy, or spotty bleeding, that is, any deviation from either the gradual but definite cessation or the sudden ending of menses, may be suspected of having carcinoma of the corpus uteri. Bleeding may only be spotty, but it can be very brisk and continuous even to the point of serious blood loss. The corpus may be normal or only slightly enlarged and very often is freely moveable.

The diagnosis rests on a careful diagnostic curettage, including the cornuisthmic areas. One of the dangers of endometrial biopsy is that often a diagnosis of a "negative" endometrium is obtained although carcinoma is present, the carcinoma being very small, off to a side, and only attainable by the uterine curet. We personally prefer a thorough formal curettage to endometrial biopsy for the diagnosis of cases suspicious of carcinoma of the endometrium. If a corporal carcinoma is shedding cells and/or if an endometrial swabbing is done, a Papanicolaou smear is made. Cells are also found at the cervical os and posterior fornix. It must be remembered that 12 to 20% are missed by this method because of lack of exfoliation.

A picture of adenocarcinoma may be present when the primary source is in the ovary (or even the tube, though quite rarely), with secondary implantation into the endometrium. Careful histological diagnosis is very important in these cases. The first sign of an ovarian carcinoma may occasionally be bleeding from the uterus owing to secondary implantation. Our present treatment of corporal carcinoma is radium irradiation followed by abdominal panhysterectomy, bilateral salpingo-oophorectomy, and then x-ray therapy.

Fibroids.—The submucous fibroid is the usual cause of bleeding in fibroids and need not be very large. Quite frequently other fibroids are present as well, in the wall and under the serosa of the uterus. Bleeding shows itself in the form of excessive and often prolonged flow in the menstrual period. Such repeated menorrhagic episodes may lead to an associated secondary anemia. The fibroid uterus can indeed be very large and the seat of multiple nodules.

In the presence of fibroids there may be associated adnexal masses often thought to be intraligamentary fibroids. These need careful evaluation, for they may be carcinoma of the ovary. In the small uterus, a submucous fibroid can be detected when an irregular filling defect is found on diagnostic curettage or a filling defect on uterosalpingography. Bleeding can also occur owing to interference with proper myometrial contraction due to intramural fibroids.

At times a submucous fibroid is seen prolapsing through the cervical canal. This is usually felt vaginally and seen per speculum. If very large it may even protrude outside the vagina. In these prolapsing fibroids, stasis and ulceration often occur and bleeding is in the form of serosanguinous spotting that may occur at any time. At times a leukometra, pyometra, or hematometra may also be present.

In the treatment of fibroids, age and parity are important considerations. Every opportunity must be given the patient to bear children. We feel that conservative measures include curettage, intravenously and orally administered estrogens, and myomectomy. In the multiparous patient the preferable management in our experience has been abdominal or vaginal hysterectomy; however, in those patients who are poor surgical risks, x-ray examination must be considered.

Adenomyosis.—The presence of endometrial-like structures in the wall of the uterus can interfere with uterine contractility and proper nourishment of the endometrial mucosa. The bleeding is that of a prolonged and/or heavy menstrual period. Associated fibroids may be present occasionally. At times findings of pelvic endometriosis are evident. Acquired dysmenorrhea may be present. The uterus often feels somewhat softened and is usually slightly enlarged and heavy; often it is found in the cul-de-sac. Diagnostic curettage might show a hyperplastic type of endometrium, but menometrorrhagia continues, in spite of the curettage. Our choice of treatment in women in the late thirties and over is hysterectomy. The ovaries are removed, depending on associated pelvic endometriosis and the age of the patient.

The endometrial polyp can be a very annoying cause of excessive uterine bleeding. It may be present in the relatively young patient who has severe menorrhagic periods and whose uterus is of normal size. This patient might have already been subjected to one or more uterine curettages, with no relief of the bleeding. The cavity is often not unusual, and the tip of the curet cannot pick up the polyp. In many cases the polyp has a very broad base, in itself difficult to remove with a curet. A hysterogram will be very helpful in many cases in revealing a filled defect. A direct visualization may also be considered. In contrast to cervical polyps, which are usually benign, the base of the endometrial polyp is often apt to be malignant. The treatment after unsuccessful curettage should be hysterectomy, indeed the only cure possible in many cases.

Tuberculosis of the Endometrium and the Cervix.—Tuberculosis of the endometrium may be discovered quite by accident after a curettage is done for irregular uterine bleeding, spotting, or in the routine endometrial biopsy in a case of sterility. Also cervical tuberculosis lesions may be rather extensive, ulcerate, and bleed. Biopsy again will make the diagnosis. In our cases we use preoperative specific antibiotics, surgery when possible, and postoperative antibiotics and supportive therapy.

Sarcoma of the Uterus.—Sarcomatous degeneration of a preexisting myoma of the uterus may give rise to uterine bleeding. It may be suspected in a rapidly growing uterus containing multiple areas of softening (degeneration). In our experience this occurs in about 0.5 to 1% of all cases of fibroids.

Functional Uterine Bleeding.—During the early menstrual and the childbearing age, when uterine bleeding occurs as a result of nonorganic (uterine) causes, such as a hormonal or metabolic imbalance, or without apparent cause, it can be called functional. It is probably a disturbance of physiological mechanisms. Organic disease must be ruled out before this diagnosis can be made.

Nutritional and vitamin deficiencies must be corrected and nervous and psychogenic factors allayed. Basal metabolic and cholesterol determination may be significant. Conservative observation is justified before doing diagnostic curettage in the younger girl. Thyroid therapy may be tried first. When bleeding is excessive it is often due to anovulatory bleeding. Here one can attempt to establish a cyclic pattern for three consecutive months, usually giving estrogen or diethylstilbestrol for 20 days, 0.5 to 1 mg. daily and then followed by progesterone, 10 mg. three times a day for 10 days. Somehow this may produce normal ovarian function in many of these cases, probably by putting all the concerned organs at rest, namely the pituitary and ovaries. As a rule the follicle stimulating hormone and luteinizing hormone of the pituitary work reciprocally well with the granulosa and thecal elements of the ovary after the "rest." At times a diagnostic curettage must be done, and in some of these patients menstruation will resume.

Not uncommonly the patient is encountered who cannot be relieved of her prolonged or excessive uterine bleeding no matter what form of therapy has been tried. Recently, such patients have responded quite well to the intravenous use of estrogen; 20 mg. (5 cc. aqueous) are given in three doses, six hours apart. The response is very impressive. Bleeding stops almost immediately or within hours, as a rule. Intravenously administered estrogens have also been very useful in the bleeding patient with known organic cause. By slowing the bleeding, it allows blood replacements to act more effectively. The acutely hemorrhaging patient can also be benefited by intravenously administered estrogen, no matter what the underlying cause, by preventing further shock and tiding the patient over until blood flow can be started. The exact mode of operation is not quite understood but may be one of direct action on the coiled arterioles in the endometrium. To prevent withdrawal bleeding, estrogens are continued by mouth in decreasing, staggering doses, or followed by a cyclic regimen of estrogens and progesterone.

Foreign Bodies.—These may be present in either the cervix or corpus. At times a metal pessary left in the cervix works its way into the corpus, engaging itself intramurally. The presence of these foreign bodies leads to infection and necrosis and very commonly spotting of serosaguinopurulent material. The diagnosis may be most puzzling, especially if the foreign body is not immediately identified. To this end roentgenography and vaginohysteroscopy are very helpful. In some cases, the long-standing presence of the foreign body may produce decubitus and even malignant degeneration. Treatment may resort to hysterectomy.

OTHER CAUSES OF UTERINE BLEEDING

In precocious, prepuberty development and onset of menses, a granulosa cell or theca cell tumor (and less commonly, adrenal cortex tumor) of the ovary must be suspected. Rectoabdominal examination (often under anesthesia) may reveal the enlarged ovary. Treatment is surgical removal. In the postmenopausal patient who reestablishes cyclic bleeding one must suspect a granulosa cell tumor of the ovary. Pelvic inflammatory disease may cause derangement and interference with the regulatory mechanism of the endometrium, producing menometrorrhagic periods.

Pregnancy and all its possible complications that cause uterine bleeding will not be fully discussed here. Threatened and incomplete abortion bleeds because of the separation and disruption of blood channels that had previously existed intact between the uterus and the developing conceptus and/or developing placenta. Likewise, postpartum retained placental tissue may cause frank excessive beeding.

There are many other causes for abnormal uterine bleeding, which do not arise from an abnormality of the uterus per se but rather from the influence from without. One might list such conditions as endometriosis, retrodisplacement of the uterus, pelvic stasis, nonestrogen producing tumors of the ovary, retrograde bleeding from tubal disease, and ectopic pregnancy. One must, of course, rule out vaginal bleeding that does not arise from the uterus but rather from the external genitalia, namely, the vulva, urethra, and vagina.

SUMMARY AND CONCLUSIONS

Abnormal uterine bleeding must be regarded seriously no matter in what age group this symptom is found. It may be easier to arrive at the cause of bleeding when the anatomicopathological pattern is kept in mind. Above all, carcinomas must be foremost in the differential diagnosis of any abnormal bleeding. Cytological, diagnostic, and fractional curettage and biopsy all have their proper place. Not to be underestimated are the complete and careful history and physical examination, including a careful bimanual, speculum, rectal, and rectovaginal examination. Constitutional causes must always be kept in mind, especially the interference with the blood platelet function and formation accompanied with the blood dyscrasias; certainly thrombocytopenic purpura must be ruled out, regardless of the presence of known existing organic causes for bleeding. Functional uterine bleeding will less frequently be incorrectly labeled if a strict search for organic causes is made. Functional bleeding does exist and is briefly discussed. Other causes as influenced by extraneous disease and pregnancy are listed.

Blood studies should be done in all cases of abnormal uterine bleeding, irrespective of the obvious gynecological disease, to rule out dyscrasia. Erosions of the cervix should not be treated until the diagnosis of carcinoma has been disproved by smear and biopsy. Certainly all women after the late twenties with aberrations in menstruation must be thought of as having possible carcinoma of the corpus.

All patients with cervical polyps who have abnormal bleeding should have a curettage in addition to a polypectomy so as not to overlook a concomitant carcinoma higher up in the uterus. Patients with asymptomatic fibroids who start abnormal bleeding must be thought to have a possible concomitant carcinoma of the cervix or corpus. One must be cognizant of the possibility of the existence of fibroids with concomitant carcinoma of the ovary. This most important combination must be borne in mind especially when asymptomatic fibroids are present. The carcinoma of the ovary may simulate the asymptomatic intraligamentary fibroid. The latter can be watched but should be reevaluated at frequent intervals, in order to rule out carcinoma of the ovary.

58 E. Washington St. (2) (Dr. Reich).

Aerial Application of Pesticides.—The aerial method of application of pesticides is one of increasing popularity. In California alone, in 1951, 2,900,000 acres (1,200,000 ha) were treated by aerial application. The reasons are not difficult to appreciate. For grasshopper control, it took two men with a ground sprayer one day to cover 100 acres (40 ha), whereas the same treatment can be applied over 1,000 acres (400 ha) by two men in 12 minutes in an aircraft. It is obvious, therefore, that more attention should be paid to the proper protection of pilots applying poisonous chemicals from aircraft. According to the Civil Aeronautics Administration (CAA) of the USA, 1,383 agricultural flying accidents occurred in the period 1948-51. An analysis showed that in only 11 of these cases could the cause of the accident be definitely attributed to the effect of a chemical or other noxious agent. . . . The CAA believes that lesser degrees of toxic action "may be partly or wholly responsible for a much greater number of agricultural flying accidents." . . . A surprising number of incidents are reported in which the pilot becomes covered in dust or spray during the operation; this suggests the need for a properly designed aircraft. At present, progress is being made towards this end by a collaborative effort between the United States Department of Agriculture, the CAA, and an aircraft construction company.—J. M. Barnes, M.D., Toxic Hazards of Certain Pesticides to Man, *Bulletin of World Health Organization*, No. 4, 1953.

ANTIBIOTICS IN DISEASES OF THE BILIARY TRACT

Jerry Zaslow, M.D., Philadelphia

As new antibiotic or chemotherapeutic agents have been introduced into the therapeutic armamentarium, many of them have been used in the treatment of biliary tract disease. Improvement observed following the use of these drugs has often been attributed to them. This has been due to the fact that each of these drugs, in the course of pharmacological observations, has been shown to be excreted into the normal biliary tract of lower animals or humans. Until I began to study the excretion and concentration of antibiotic and chemotherapeutic agents in the abnormal human biliary tract, no one had approached the problem from that aspect. Since that time I have studied the excretion and concentration of the sulfonamides, penicillin, streptomycin, aureomycin, and, more recently, oxytetracycline (Terramycin). As a result of these investigations it became apparent that the excretion and concentration in the abnormal biliary tract was entirely different from that in the normal, and that various conditions were necessary for the excretion of those drugs in any therapeutic concentration. The results of those investigation either have been previously reported [1] or will be reported in the very near future.[2]

In the presence of normal liver function and an unobstructed biliary tract each of the agents studied was excreted in high concentration into the extrahepatic biliary tract. In the presence of either impaired liver function or active common duct obstruction, or a combination of both, the drugs either were not excreted at all or were excreted in small amounts, depending on the degree of liver damage or common duct obstruction. When the cystic duct was patent and the drugs were excreted from the liver into the bile ducts, they appeared in the gallbladder bile and remained there for long periods of time. However, when the cystic duct was obstructed, none of the agents studied entered the gallbladder lumen; this was true whether or not the organ was acutely inflamed. It was concluded as a result of these studies that the patency of the cystic duct was the most important factor concerned with the drugs entering the gallbladder lumen. Acute inflammation of the organ did not alter the mode of entrance.

In order to determine whether these experimental findings were useful when applied in the treatment of biliary tract infections, a clinical study was undertaken during the five year period from 1947 to 1951, inclusive. Every other patient admitted to the hospital with the signs and symptoms of acute cholecystitis, other disease such as pancreatitis, duodenal ulcer, or hepatitis having been ruled out, was immediately placed on a regimen consisting of feedings given intravenously, drugs to relieve pain, and gastric suction if there was much vomiting or belching. Nothing was given orally. Every other patient admitted with the same diagnosis was treated in a similar manner, except that an antibiotic was also administered. Only those cases in which acute obstructive cholecystitis proved to be present at operation were included in the survey. A similar program was followed for patients with common bile duct obstruction, often with associated clinical evidence of cholangitis and/or hepatitis, although these patients were encouraged to eat well.

RESULTS OF THE CLINICAL STUDY

Patients with Acute Cholecystitis (Table 1).—There were 171 cases of proved acute cholecystitis. It was observed that in the group of patients with a milder clinical form of the disease unassociated with severe systemic reaction (109 patients) the response to the regimen omitting antibiotics was often prompt and complete, as demonstrated by the return of the leukocyte count and temperature to normal, and by the subsidence of local tenderness and rigidity; however, a mass in the upper abdomen often persisted. There was little appreciable difference in response when an antibiotic was given. What improvement was noted could not be attributed to the antibiotics.

There was a marked difference in response to antibiotics in that group of patients where there was a severe systemic reaction to the local disease (62 patients). In those patients in this group who did not receive any antibiotic (31 patients) the symptoms and signs were slow to respond to ordinary medical measures, or did not respond at all. Five of those patients appeared to become worse. They were then given an antibiotic, and treatment without antibiotics was considered to have failed. The response of the group of patients with marked systemic reaction to the local disease treated with antibiotics was often quite dramatic. In many the temperature promptly returned to normal, chills, if present, disappeared, and the leukocyte count dropped. On the other hand, although the local tenderness and rigidity decreased, a mass in the right upper quadrant ofter persisted, and subsidence, if it occurred at all, was very slow. This was an interesting observation, indicating that the local process was little or not at all affected. However, because of the improvement in the patient's general systemic condition, emergency surgery could usually be deferred. In two patients in the entire series, in spite of large doses of antibiotics, there was local or systemic progression of the disease, making emergency surgery necessary. In all others (169 patients) operation was performed electively 7 to 14 days after admission to the hospital.

When these patients with acute cholecystitis were subjected to operation, it was observed by both the operator

---

Associate Surgeon, Albert Einstein Medical Center.

Read before the Section on Experimental Medicine and Therapeutics at the 102nd Annual Session of the American Medical Association, New York, June 3, 1953.

[1] Zaslow, J.; Counseller, V. S., and Heilman, F. R.: The Excretion and Concentration of Penicillin and Streptomycin in the Abnormal Human Biliary Tract: Gall Bladder, Surg., Gynec. & Obst. **84:** 16 (Jan.) 1947; The Excretion and Concentration of Penicillin and Streptomycin in the Abnormal Human Biliary Tract: Hepatic Bile, ibid. **84:** 140 (Feb.) 1947. Zaslow, J., and Counseller, V. S.: Sulfathiazole in the Abnormal Human Biliary Tract, Am. J. M. Sc. **214:** 68 (July) 1947. Zaslow, J.; Hewlett, T. H., and Lorry, R. W.: The Excretion and Concentration of Aureomycin in the Abnormal Human Biliary Tract: Gall Bladder, Gastroenterology **16:** 475 (Oct.) 1950. Zaslow, J.; Hewlett, T. H., and Goldsmith, R.: The Excretion and Concentration of Aureomycin in the Abnormal Human Biliary Tract: Hepatic Bile, ibid. **16:** 479 (Oct.) 1950.

[2] Zaslow, Jerry: Unpublished data.

and the pathologist that they were unable to determine, on the basis of the local pathological changes, in which patient an antibiotic had been used in the preoperative period. Empyema of the gallbladder was seen both in those who did and in those who did not receive antibiotics (16% in each group). In some patients the gallbladder had perforated locally or into a walled-off area in the liver, or was densely surrounded by omentum and was adherent to adjacent colon or duodenum (27% of all patients). This observation also bore out the fact that in many patients it was impossible to determine from the clinical picture what the local pathological process would be when operation was performed. Often a patient admitted to the hospital and responding within 6 to 12 hours to ordinary medical measures excluding antibiotics was found to have an empyema with or without local perforation. This was also true in those who received antibiotics.

TABLE 1.—*Results of Study of 171 Patients with Acute Cholecystitis*

Condition of Patient	No. of Patients	Clinical Response	No. of Patients with Empyema
Mild systemic reaction * No antibiotics given on admission	55 (mass noted in 17)	Good No emergency operation (mass persisted in 6)	10
Mild systemic reaction * Antibiotics given on admission	54 (mass noted in 12)	Good No emergency operation (mass persisted in 9)	8
Severe systemic reaction † No antibiotics given on admission	31 (mass noted in 12)	26 improved systemically (mass persisted in 4) 5 became worse and then were given one of the antibiotics, with excellent systemic response; no emergency operations were done	4
Severe systemic reaction † Antibiotics given on admission	31 (mass noted in 14)	Excellent systemic response in 29 (mass persisted in 7); no emergency operations were done. 2 patients became worse and were given emergency surgery	5

* Leukocyte count under 18,000 blood cells per cubic milliliter, temperature under 101 F, and pulse rate usually under 100 per minute.

† Leukocyte count over 18,000 cells per cubic milliliter, a temperature over 101 F, and pulse rate usually over 100 per minute.

Patients with Common Duct Obstruction and Cholangitis (Table 2).—The problem with regard to common bile duct obstruction with cholangitis is quite similar to that described. In many patients with obstruction pain and jaundice were the only symptoms present. In others these were associated with chills, fever, drenching sweats, and high leukocytosis. The administration of antibiotics to those with simple obstruction did not appear to affect the severity of the icterus or the pain; many of them had subsidence of symptoms without any active treatment.

As to the group with associated clinical evidence of cholangitis, many had complete subsidence of all systemic symptoms without any antibiotic treatment. On the other hand, in some of the patients the disease appeared to become progressively more severe. When one of the antibiotics was given to this group of patients, the response was often dramatic; within 24 to 48 hours all systemic symptoms disappeared, with the jaundice becoming less intense in some. On the whole, in that group of patients with clinical evidence of cholangitis of moderate or severe degree who received antibiotics immediately after admission to the hospital the systemic response was excellent.

When surgery was performed on patients with ductal obstruction, the incidence of positive bile cultures was 85.7% for the group treated without antibiotics and 82% for the group treated with antibiotics.

COMMENT

Acute Cholecystitis.—It is generally recognized that many patients with acute obstructive calculous cholecystitis will have spontaneous remission of the disease. Others will have progression of the disease with empyema or rupture, either locally or into the general peritoneal cavity. In the recent literature there have been a few reports indicating that some of the antibiotics have brought about improvement of this disease. In view of what has been stated in the preceding paragraphs, these reports should be evaluated more critically. As a result of the findings of this investigation, it appears that the antibiotics do not affect the local pathological changes. This has been reported by others.[3] On the other hand, the antibiotics in many cases did often promptly relieve systemic symptoms within a few hours after their administration. In several test cases when the drug was stopped the symptoms recurred, only to subside again when the drug was once again given. It appears that in the management of a patient with acute cholecystitis the antibiotics may be particularly useful when there is a severe systemic reaction to the local disease.[4] In the presulfonamide era many patients with acute cholecystitis who had systemic symptoms were often operated on as emergencies. The mortality figures of that day were mainly the mortality figures of that group. However, since the local pathological process is apparently not affected, the physician must not be deluded into a sense of false security in any particular case. It is not within the province of this report to judge the value of immediate as against delayed sur-

TABLE 2.—*Results of Study of Eighty-Four Patients with Common Duct Obstruction*

Condition of Patient	No. of Patients	Clinical Response	*No. of Patients with Positive Bile Cultures*
No clinical cholangitis * No antibiotics given on admission	13	No effect	7
No clinical cholangitis * Antibiotics given on admission	13	No effect	5
Clinical cholangitis † No antibiotics given on admission	29	14 improved,‡ and 15 became worse and were then given antibiotics §	29
Clinical cholangitis † Antibiotics given on admission	29	27 improved, and 2 did not improve	29

* *No obvious signs or symptoms of infection, such as chills, fever, or leukocytosis.*

† Jaundice, chills, fever, and/or leukocytosis.

‡ Systemic symptoms subsided within 24 to 48 hours.

§ Of these 15 patients, 12 had a prompt *response to* antibiotics.

---

[3] (*a*) Baur, O., and Linzenmeier, G.: The Sulfonamides and Antibiotics in the Treatment Preliminary to Cholecystectomy, Internat. Abst. Surg. **94**: 355 (April) 1952. (*b*) Rutenburg, A. M.; Schweinberg, F. B., and Fine, J.: Clinical Experiences with Aureomycin in Surgical Infections, Ann. Surg. **133**: 344 (March) 1951.

[4] Baur and Linzenmeier.[3a] Ruttenburg.[3b] Buxton, R. W.; Ray, D. K., and Coller, F. A.: Acute Cholecystitis, J. A. M. A. **146**: 301 (May 26) 1951.

gery in the management of acute cholecystitis. It suffices to say that in any case where the local process continues all agree that operation is indicated. I would suggest the following measures be followed for all patients with acute cholecystitis: (1) absolute bed rest; (2) administration of nothing by mouth; (3) gastric suction if there is much vomiting or belching; (4) administration of meperidine (Demerol) and atropine to relieve pain; (5) administration of fluids and vitamins intravenously; (6) omission of antibiotics for those patients who do not have a marked systemic reaction (this would prevent the occasional anaphylactic or toxic effect of the drug), but administration of antibiotics to patients who do have marked systemic reaction or who do not respond readily to the above measures; (7) early operation when deemed necessary owing to lack of response of systemic symptoms and progress of the local disease.

It would appear that the antibiotics might prove helpful in the management of gallbladder disease when the cystic duct is not obstructed. This includes the occasional case of acute noncalculous cholecystitis (about 5% of all cases of acute cholecystitis) and those of chronic cholecystitis without cystic duct obstruction. I have had several patients with all the signs and symptoms of acute cholecystitis associated with severe systemic reaction in whom other disease was ruled out and who responded promptly to antibiotics, and in whom subsequent cholecystograms and biliary drainages were unable to prove the presence of either calculi or bacteria in the biliary tract. Whether these were cases of acute noncalculous cholecystitis cured by the antibiotics was never definitely established; the evidence was very suggestive. Several years ago I operated on a patient with acute cholecystitis in the days when penicillin and streptomycin were used. Since that patient was sensitive to both drugs as well as to the sulfonamides, he was given neither and was operated on as an emergency. No calculi were found. Cultures of the gallbladder wall and bile showed Streptococcus hemolyticus. This patient may well have responded to one of these drugs had it been considered safe to use them. In three other cases of noncalculous cholecystitis (two cases of Brucella melitensis cholecystitis and one of streptococcic cholecystitis) the administered antibiotic was useful only while it was being given. When the drug was stopped, the disease recurred, both locally and systemically.[5] After the gallbladder was removed, there was no longer any recurrence. This may have been due to the fact that the organisms harbor in the wall of the gallbladder and are most difficult to eradicate in this location. Whether these drugs will prove useful in the management of cases of typhoid cholecystitis is uncertain. As to the group of patients with nonobstructive calculous cholecystitis, I am unable to see how the antibiotics can be of any permanent value, since the pathological changes of acute obstructive cholecystitis depend primarily not on infection but rather on obstruction of the cystic duct with secondary distention of the organ. In addition, since the organisms when present often are buried deep in the wall of the gallbladder, drug therapy is most uncertain in reaching them.[6]

Common Duct Obstruction with Cholangitis.—All who have had any experience with cases of cholangitis are well aware of the fact that this disease is often associated with spontaneous remissions and exacerbations. This is particularly true when the causative agent, such as mechanical obstruction from stone, stricture, or tumor, is not removed. In view of this observation it is most difficult to evaluate the effectiveness of any drug given to "sterilize" the biliary tract in such cases. Numerous reports in the literature have attested to the fact that one or another drug was responsible for curing a patient with cholangitis. As a result of the basic excretion studies carried out and previously reported,[7] it would appear that the antibiotics often prove useless when they are most needed. In patients with biliary tract obstruction and infection proximal to the obstruction it has been shown that the agents do not reach the biliary tree until the obstruction is removed, provided that the liver damage is not severe enough to interfere with excretion of the drug. On the other hand, since the liver is so rich in its blood supply, it can be supposed that the drug would reach it in high concentration and may in this way help resist the ascent of organisms into the liver itself. From the clinical study presented here it appears that this does happen. In many patients with obstructive jaundice and cholangitis the antibiotics did improve the general condition of the patient, so that chills, fever, and, in some cases, even jaundice would abate. In this way the patients could be more carefully and deliberately prepared for operation. It would appear that the offending organisms produce much of their systemic effects as a result of invasion of the liver and subsequently the blood stream. In some cases the drug appears to arrest the organisms at the hepatic level, converting the disease from a systemic to a local one.

In the postoperative period the antibiotics are useful locally in the bile ducts, since, when the obstruction is overcome, these agents are excreted in high concentration as the liver function improves. In this manner they aid the natural antibacterial action of free flowing bile. In cases of infection of the liver secondary to bloodborne organisms or to direct lymphatic spread the antibiotics are useful.[8] On several occasions cases of pyelophlebitis of the portal vein cured by one of these agents have been reported.

No mention has been made as to whether one antibiotic was more effective than another. An attempt was made to do this; however, this was such a difficult thing to interpret, or even to tabulate, that it has not been included in this paper. In any particular patient the ideal drug would be the one that is shown to inhibit the organisms in his biliary tract. However, since such cultures cannot be made in the preoperative period, the next best choice is a wide-spectrum antibiotic.[9]

SUMMARY

The most important factor affecting the entrance of certain drugs into the gallbladder lumen is the patency of the cystic duct. Acute inflammation of the gallbladder does not alter the mode of entrance of these drugs. In the presence of an unobstructed common bile duct and normal liver function the drugs are excreted from the liver into the biliary tract in high concentration. In the presence of an actively obstructed common bile duct or impaired liver function the drugs are excreted either not at all or in very small concentrations. When obstruction is overcome and liver function improves, the drug is again excreted in high concentration.

---

[5] Schloss, E. M.: Personal communication to the author.

[6] Twiss, J. R.; Carter, R. F., and Fishman, B. S.: Infection in Chronic Cholecystitis: Review of 259 Operative Cases with Preoperative and Postoperative Duodenal Drainage Studies, J. A. M. A. **147:** 1226 (Nov. 24) 1951.

[7] Footnote 1. Zaslow.[2]

[8] Rachmilewitz, M.: Chronic Intrahepatic Cholangitis and Effect of Sulfonamides on its Clinical Manifestations, Gastroenterology **18:** 530 (Aug.) 1951.

[9] Anderson, R. E., and Priestley, J. T.: Observations on the Bacteriology of Choledochal Bile, Ann. Surg. **133:** 486 (April) 1951.

The local pathological changes of acute obstructive calculous cholecystitis are not affected by the therapeutic agents studied. In an occasional case acute noncalculous cholecystitis may be cured by one of these agents. In the usual mild case of acute obstructive calculous cholecystitis the clinical course is not affected by the administration of these drugs. In the gravely ill patient with acute obstructive cholecystitis the systemic symptoms are often relieved by the administration of these drugs; the local process appears to be unaffected. The percentage of cases of acute obstructive cholecystitis with empyema or perforation is the same, whether or not the drugs are used. The drugs should be used in cases of acute cholecystitis with systemic manifestations in order to better prepare patients for operation. The availability of these drugs should not alter the indications for operation in acute cholecystitis.

In patients with obstructive jaundice the drugs do not overcome any active local infection as long as the obstruction persists. When obstruction is relieved, the drugs are excreted in high concentration and may be expected to aid the natural healing processes. During active common bile duct obstruction the drugs should be given to protect the liver from ascending infection. During active common bile duct obstruction the drugs often do relieve any associated systemic symptoms, making these patients better operative risks. The availability of these drugs should not alter the indications for operation in cases of obstructive jaundice with cholangitis. They should be used only as adjuncts both in the preoperative and postoperative periods.

8270 Williams Ave. (19).

RENAL FUNCTION DURING GENERAL ANESTHESIA AND OPERATION

E. M. Papper, M.D., New York

Interest in renal function during anesthesia and operation and in the postoperative period has increased greatly in recent years. There has been an intensive effort to gain further knowledge about renal activity in surgical patients, with a greater appreciation of the subtle physiological changes that occur during and after operation. Renal function was not previously emphasized in care of surgical patients because of pressing demands for study of cardiovascular function and respiration, which are immediate problems in every surgical patient. Although not so apparent, the influence of the kidney on the ultimate success of surgical procedures is no less striking.

This paper reviews briefly some of the aspects of renal function during anesthesia and surgery. Perhaps it is not generally realized that the kidney is a circulatory organ of considerable importance; it normally accommodates approximately 25% of the total cardiac output. The kidney undoubtedly has an important role in circulatory adjustments during anesthesia and operation because of the widespread cardiovascular changes that occur during anesthesia in response to stimuli designed to maintain arterial pressure, cardiac output, and adequate blood flow to the vulnerable tissues of the brain and the heart. It will be useful to examine the nature of renal participation in this homeostatic circulatory response.

It has long been known that urine formation is diminished during and after anesthesia. This is associated with retention of salt in the postoperative period and inability of the body to tolerate certain types of salt loads. There appear to be acute persistent derangements in distribution, volume, and composition of body fluids during the period of convalescence.[1] Since the kidney is so directly involved in selective secretion and retention of water and electrolytes it is of interest to study the influence of anesthesia and operation on kidney function from this standpoint.

Studies over the last few years suggest that serious disturbances in normal acid-base balance may occur during anesthesia and operation and sometimes in the postoperative period. So far as is known, the changes in acid-base control are largely respiratory in origin.[2] These originate chiefly in the factors associated with hypoventilation and, therefore, impaired excretion of carbon dioxide, with subsequent development of respiratory acidosis. It has not been adequately appreciated that the kidney, which is the other important organ of acid-base control, under normal conditions can effect sufficient compensation for this type of respiratory dysfunction. Whether the kidney is able to do so during anesthesia is open to question. There are, unfortunately, insufficient data on this question, but the possibility of renal dysfunction under these conditions cannot be ignored.

Finally, interest is directed to the kidney because of the infrequent but serious total disruption of renal function in the postoperative period. This has been attributed to insufficient perfusion of blood through the kidney, with consequent anoxia of renal tissues. The kidney has been alleged to be extraordinarily sensitive to oxygen lack under these conditions; an otherwise satisfactory

---

Read before the Section on Anesthesiology at the 102nd Annual Session of the American Medical Association, New York, June 2, 1953.

From the Department of Anesthesiology, College of Physicians and Surgeons, Columbia University and the Anesthesiology Service, Presbyterian Hospital.

[1] Stewart, J. D., and Rourke, G. M.: Changes in Blood and Interstitial Fluid Resulting from Surgical Operation and Ether Anesthesia, J. Clin. Invest. 17:413-416, 1938.

[2] Beecher, H. K., and Murphy, A. J.: Acidosis During Thoracic Surgery, J. Thoracic Surg. 19:50-70, 1950.

anesthesia and operation may result in either fatal anuria or stormy convalescence with a lower nephron nephrosis syndrome. Anesthesia may have some bearing upon the development of this syndrome.

EFFECT OF ANESTHESIA ON DISCRETE RENAL FUNCTIONS

It appears logical, therefore, to investigate the nature of changes in discrete renal functions during anesthesia by studies of glomerular filtration, renal blood flow, and urinary excretion of water and electrolytes. In 1943, Coller and his associates [3] studied the influence of ether and cyclopropane on glomerular filtration and renal plasma flow. They found no essential change in these functions with ether anesthesia but observed depression of glomerular filtration and a variable effect on renal plasma flow with cyclopropane. This relative lack of effect of anesthesia agents on glomerular filtration and renal plasma flow has not been corroborated by subsequent studies. From other observations the absence of disturbances in renal function during anesthesia found by Coller and his associates may be explained by the time during the course of anesthesia at which observations were made. Control measurements were made prior to the establishment of anesthesia, and the changes associated with anesthesia were measured at the end of operation. Studies by Habif and others [4] indicate that recovery in glomerular filtration and renal plasma flow changes occurs at the termination of anesthesia.

Another variable that may influence these observations concerns depth of anesthesia. Craig, Visscher, and Houck,[5] found that, in the dog, renal plasma flow, glomerular filtration, and renal tubular activity were not altered significantly during light anesthesia with ether or cyclopropane; however, during deep anesthesia these functions were reduced approximately 50%, which was attributed to neurogenic constriction of afferent renal arterioles. In view of this work it should be pointed out that no studies are available in which the depth of anesthesia was monitored rigidly either by measurement of the concentration of anesthetic agents in the arterial blood or by electroencephalographic control. Thus some of the confusion in observation and interpretation of renal changes may be attributed to the fact that different workers have studied anesthesia at different depths, relying on relatively crude clinical signs.

In 1949, Burnett and his associates [6] also studied the influence of ether and cyclopropane on renal function in man. Depths of anesthesia used were "moderate to light," and the variables of premedication and operation were eliminated by terminating the observations just prior to operation and omitting premedication. With ether anesthesia glomerular filtration decreased an average of 21% and tended to improve as anesthesia progressed. Renal plasma flow fell an average of 39%, and the filtration fraction rose an average of 25%. Urine flow during anesthesia decreased 51% because of increased tubular reabsorption of water as well as a decrease in glomerular filtration and renal plasma flow. During cyclopropane anesthesia the changes were similar but increased in intensity. Glomerular filtration decreased an average of 31%; renal plasma flow fell an average of 52%; and the filtration fraction rose 35%. The changes in renal function were clear, significant, and marked; however, the influence of ether on renal functional changes was less marked.

The influence of the barbiturates on these phases of renal function has not been extensively studied. In 1943 Corcoran and Page [7] pointed out that pentobarbital sodium in doses of 30 mg. per kilogram of body weight given to a dog intraperitoneally does not significantly alter glomerular filtration or renal plasma flow. Glauser and Selkurt [8] found that barbital sodium and pentobarbital sodium had no apparent effect upon glomerular filtration in a dog during a 5 to 6 hour period, Renal plasma flow decreased about 18% during the same interval; this change was not thought to be significant.

Another factor of importance is the state of hydration of the patient prior to measurement of renal functions. Breed and Baxter [9] point out that the surgical patient may be in various stages of dehydration and starvation preoperatively. These conditions undoubtedly influence subsequent studies and should be considered in comparing functional values in the surgical patient with those observed in normal persons under nonsurgical conditions.

STUDY OF 34 PATIENTS

In 1951, Habif and his associates [4] reported a study of 34 patients subjected to a variety of major surgical procedures. Studies of glomerular infiltration, renal plasma flow, urine excretion, and excretion of sodium, potassium, and chloride were made. Agents studied were the premedicant drugs meperidine, morphine, and atropine, and the anesthetic agents cyclopropane, ether, and the combination of thiopental sodium and nitrous oxide and oxygen. Insofar as possible, the depth of anesthesia was kept at the second plane of surgical anesthesia as judged by clinical signs.

The effect of meperidine (100 mg. doses in the average adult) was a reduction in glomerular filtration ranging from 21% to 45% below the control value. Renal plasma flow also decreased 24% to 50%. There was an associated slight rise in filtration fraction. These changes were not interpreted as caused by the slight, relatively inconstant fall in blood pressure seen subsequent to the use of this drug, but as evidence of intrarenal vasoconstriction. Similar but less marked changes in these two functions were observed with the use of 10 mg. of morphine subcutaneously. The most striking change was a sharp decrease in urine flow with use of meperidine. This decrease in water output was associated with increased urinary concentrations of sodium, potassium, and chloride. Despite these changes in concentration, total output of electrolytes actually diminished. Output of potassium was nearly always reduced to the same extent as glomerular filtration. It was inferred that potassium reabsorption remained relatively unchanged during the influence of meperidine but that there was an increase in tubular reabsorption of water, sodium, and chloride relative to glomerular filtration. Atropine in doses of 0.5 mg. had no apparent effect on renal function.

---

[3] Coller, F. A., and others: Effects of Ether and Cyclopropane Anesthesia Upon Renal Function in Man, Ann. Surg. **118**: 717-727, 1943.

[4] Habif, D. V., and others: Renal and Hepatic Blood Flow, Glomerular Filtration Rate, and Urinary Output of Electrolytes During Cyclopropane, Ether, and Thiopental Anesthesia, Operation, and Immediate Postoperative Period, Surgery **30**: 241-255, 1951.

[5] Craig, F. N.; Visscher, F. E., and Houck, C. R.: Renal Function in Dogs Under Ether or Cyclopropane Anesthesia, Am. J. Physiol. **143**: 108-118, 1945.

[6] Burnett, C. H., and others: Comparison of Effects of Ether and Cyclopropane Anesthesia on Renal Function of Man, J. Pharmacol. & Exper. Therap. **96**: 380-387, 1949.

[7] Corcoran, A. C., and Page, I. H.: Effects of Anesthetic Dosage of Pentobarbital Sodium on Renal Function and Blood Pressure in Dogs, Am. J. Physiol. **140**: 234-239, 1943.

[8] Glauser, K. F., and Selkurt, E. E.: Effect of Barbiturates on Renal Function in Dog, Am. J. Physiol. **168**: 469-479, 1952.

[9] Breed, E. S., and Baxter, C. F.: Symposium on Basic Sciences in Surgical Practice: Renal Function in Surgery, S. Clin. North America **32**: 617-627, 1952.

In 11 patients changes in renal function were observed during cyclopropane anesthesia and major surgical procedures uncomplicated by shock or hemorrhage. Cyclopropane produced a definite decrease in glomerular filtration, averaging 55%. Renal plasma flow was reduced approximately 70%. These changes occurred immediately or shortly after induction of anesthesia, were associated with a rise in filtration fraction, and were interpreted as evidence of marked intrarenal vasoconstriction affecting both afferent and efferent arterioles. The surgical procedure itself had no further influence on renal function. In fact, as operation progressed, glomerular filtration and renal plasma flow tended to return toward normal. Urine output was remarkably reduced and in some instances ceased entirely. Changes in urinary potassium excretion were variable; however, almost without exception the output of sodium and chloride was remarkably reduced. These electrolyte changes were interpreted as due to a relative increase in tubular reabsorption of water and electrolytes. When anesthesia was discontinued all measured functions returned quickly to, or nearly to, the control levels. This was observed despite an occasional reduction in blood pressure (cyclopropane shock) following termination of anesthesia. There was, however, no evidence of reactive hyperemia in the kidneys. As glomerular filtration was restored to normal, urine output and excretion of electrolytes increased, with no tendency to rise above preanesthetic control levels.

During ether anesthesia there was a 40% reduction in glomerular filtration and 54% decrease in renal plasma flow. These changes were similar to those observed with cyclopropane, although the response was not quite so marked. The observations of Burnett and his associates [6] were, therefore, corroborated. During ether anesthesia there was also increased reabsorption of water, sodium, and chloride, relative to filtration. Changes in renal function observed during thiopental and nitrous oxide-oxygen anesthesia were similar to those observed with cyclopropane and ether.[4]

PHYSIOLOGICAL INTERPRETATIONS

It is necessary, therefore, to examine all these data in order to define and interpret the nature of renal functional changes during anesthesia and operation. Anesthetic agents that produce loss of consciousness apparently have a profound, reasonably consistent, and relatively nonspecific effect on output of urine, excretion of electrolytes, and on certain circulatory changes within the kidney. This is true if the depth of the anesthesia is reasonable and if observations are made during administration of anesthesia, rather than at its termination. Hemodynamic changes in the kidney are those of vasoconstriction, which persists only as long as the patient is unconscious with general anesthetic agents. Because of the reduction in glomerular filtration as well as renal plasma flow, there is probably both afferent and efferent arteriolar constriction in the kidney; in fact, this vasoconstrictor response in the kidney circulation is also associated with vasoconstriction in the splanchnic circulation.[4] Reduction in blood flow is approximately 50% through these two major peripheral circulatory components. The impact of this marked redistribution of blood flow during anesthesia must be great; its significance in terms of physiological activity during anesthesia and operation remains for future interpretation. At present, the cause of these vascular adjustments is unknown; however, it appears reasonable to assume that trauma of operation has no influence, since the changes occur during anesthesia without operation and tend to decrease as operation progresses, provided there is no shock or hemorrhage. Renal vascular changes are also rapidly reversible after termination of anesthesia, which suggests that there is probably little significant direct action of drugs on the renal circulation. It is unlikely, for example, that ether could be eliminated from the tissues within a period of 10 to 20 minutes in sufficient concentration to permit reversal of the renal changes described. Thiopental in this period of time (10 to 20 minutes) remains almost unchanged with respect to tissue and plasma concentration.[10] Renal hemodynamic changes observed during anesthesia resemble changes seen with a variety of clinical situations such as congestive heart failure, violent exercise, pain, chronic anemia, and shock. In these circumstances intrarenal vasoconstriction may serve a useful purpose in diverting blood temporarily from organs relatively resistant to anoxia to more vulnerable tissues such as the brain and heart. Even if this response during anesthesia can be accepted as a homeostatic influence of stress, the mechanism of production of these changes is obscure. Changes in arterial pressure do not account in general for the renal changes. Autonomic interruption by high spinal anesthesia or sympathectomy does not alter the responses described during cyclopropane, ether, or thiopental, nitrous oxide, and oxygen anesthesia.[11]

Elaboration of antidiuretic hormone by the posterior pituitary does not account completely for the urinary changes during general anesthesia, since electrolyte excretion is also profoundly disturbed. Habif and his associates [4] attribute electrolyte changes to the increase in tubular reabsorption resulting from a decrease in glomerular filtration, which in turn is the result of intrarenal vasoconstriction.

There is also the question whether the profound renal functional changes described are responsible for failure of the kidneys to make appropriate adjustments to administration of water and salt in the postoperative period. The studies of Habif and his associates [4] indicate that renal functional changes are temporary and reversible. It is reasonable to assume that postoperative changes are not caused by a defect in glomerular filtration; however, it is possible that the renal tubules have been conditioned in some manner by anesthesia or operation or both, so that they do not function adequately with regard to water and salt loads in the postoperative period. Corroboration of this interpretation is presented by Ariel and Miller,[12] who showed that renal plasma flow was essentially normal in the postoperative period, and, in fact, glomerular filtration actually increased an average of 12.7%, with an associated increase in filtration fraction of 17.4%. The authors concluded that, in the absence of shock and hemorrhage, postoperative water and electrolyte alterations are not the result of kidney dysfunction. Moyer [13] also stated that the anesthetic agent per se is not implicated in postoperative derangements of urine formation and electrolyte control. He believes these changes are probably due to distributional shifts of body fluids and afferent stimuli from the operative area.

---

[10] Brodie, B. B., and others: Fate of Thiopental in Man and Method for Its Estimation in Biological Material, J. Pharmacol. & Exper. Therap. 98: 85-96, 1950.

[11] Bradley, S. E.; Habif, D. V., and Papper, E. M.: Unpublished data.

VENOUS CONGESTION, ANOXIA, AND HYPOTENSION

Another point of interest is the effect of chronic peripheral venous congestion on renal sodium excretion. Venous congestion or dilatation during anesthesia is not uncommon; either condition may be associated with increases in venous pressure. This effect on the veins is not clearly understood, but it may be caused by subtle increases in resistance to breathing, unrecognized respiratory obstruction, and venodilatation from the autonomic effects of anesthetic agents. Frieden and his associates [14] showed in the dog that the kidney may retain abnormal amounts of sodium by increased tubular reabsorption during venous congestion and that this renal mechanism is not necessarily accompanied by a fall in glomerular filtration or renal plasma flow. This change apparently occurs with a generalized elevation of venous pressure and does not necessarily involve specific increases of venous pressure in renal circulation.

The influence of anoxia on renal function is important during anesthesia, because anoxia may occur at any time; in fact, reduction in renal plasma flow may cause relative renal anoxia. In studies on unanesthetized dogs and men, Axelrod and Pitts [15] found no significant effect on renal tubular function or glomerular filtration during anoxia induced by inhalation of gas mixtures deficient in oxygen. They also pointed out that in moderate hypoxia there was no major change in oxygen consumption in the kidney. No satisfactory data are available defining the influence of anoxia on renal functional activity during anesthesia.

Increasing use of induced hypotension with autonomic ganglionic blocking agents during anesthesia presents the problem of the influence of this type of anesthetic management on renal function. Miles and his associates [16] reported the effects of hypotension produced by pentamethonium bromide during inhalation anesthesia with ether and cyclopropane. Both ether and cyclopropane caused a fall in renal plasma flow and glomerular filtration similar to that reported by others. After induction of hypotension with pentamethonium bromide there was no further change in renal blood flow. A slight increase in glomerular filtration was observed during induced hypotension. Miles and his associates interpret the fact that renal plasma flow was well maintained in spite of considerable reduction in arterial pressure as indicative of a substantial renal vasodilatation. They believe that the mechanism for maintenance of a relatively constant renal plasma flow is more directly associated with the inherent capacity of these vessels to adjust their caliber than it is with blockade of sympathetic impulses to the renal vessels by pentamethonium bromide. The authors point out, however, that renal blood flow was maintained during hypotension in healthy patients undergoing minor surgery. It is by no means certain that the same changes would occur under less favorable conditions.

SUMMARY AND CONCLUSIONS

In interpretation of these data on the influence of general anesthetic agents on renal function, it is clear that general anesthesia produces a stereotyped response in the kidney, depending somewhat on depth of anesthesia; the greater the depth, the more profound the changes. These stereotyped changes are a striking intrarenal vasoconstriction associated with a fall in glomerular filtration and reduction in urinary concentration and excretion of electrolytes and water. There appears to be a relative increase in renal tubular reabsorption of both electrolytes and water. The changes are similar to those seen with various lesions and physiological alterations that may be considered stressful. Operation itself, in the absence of shock and hemorrhage, has little effect on renal function that can not be accounted for by the effect of anesthetic agents. It is probable that renal dysfunction in the postoperative period is due not directly to influence of the anesthetic agent during operation but to other factors involving responses from the wound and shifts in body fluids. The anesthetic agent itself may affect the renal tubules so that they are unable to manage increased water and salt loads in postoperative parenteral fluid treatment.

622 W. 168th St.

[12] Ariel, I. M., and Miller, F.: Effects of Abdominal Surgery upon Renal Clearance, Surgery **28**: 716-728, 1950.

[13] Moyer, C. A.: Acute Temporary Changes in Renal Function Associated with Major Surgical Procedures, Surgery **27**: 198-207, 1950.

[14] Frieden, J., and others: Effects of Chronic Peripheral Venous Congestion on Renal Sodium Excretion, Am. J. Physiol. **168**: 650-657, 1952.

[15] Axelrod, D. R., and Pitts, R. F.: Effect of Hypoxia on Renal Tubular Function, J. Appl. Physiol. **4**: 593-601, 1952.

[16] Miles, B. E.; deWardener, H. E.; Churchill-Davidson, H. C., and Wylie, W. D.: Effect on Renal Circulation of Pentamethonium Bromide During Anesthesia, Clin. Sc. **2**:73-79, 1952.

Renal Tumors.—The diagnostic methods now available for recognition of renal tumor are noted for their accuracy and rarely fail if properly applied and the results correctly interpreted. It appears, therefore, that if a number of asymptomatic lesions are to be diagnosed during a stage when nephrectomy may effect a cure, more routine studies of the urinary tract will have to be done than are currently being done. Rarely does a general physical examination fail to include a roentgenogram of the chest, and few pulmonary lesions are encountered which are of more importance than renal tumors. The ease with which excretory urography is carried out and the information gained from it have largely eliminated the objectionable features of studying the urinary tract which formerly existed. As already indicated, it does not within itself suffice to diagnose space-occupying masses of the renal parenchyma but in the presence of good renal function it will indicate variations from the normal that suggest the necessity for other supplementary studies. It is not suggested that routine study of the urinary tract be done on every patient, but tumors of the renal parenchyma are found largely in those between the ages of 40 and 55 years, and it seems reasonable to suggest that this group be subjected to the same careful consideration of the urinary tract that is given the chest, the gastrointestinal tract and other systems.—Edgar Burns, M.D., Clinical Diagnosis of Tumors of Adult Renal Parenchyma, *The Journal of Urology*, July, 1953.

THE SOCIOPSYCHOLOGICAL TREATMENT OF EPILEPSY

William G. Lennox, M.D.
and
Charles H. Markham, M.D., Boston

Epilepsy is no longer inscrutable; its control is no longer in the state of wishful thinking. The electroencephalogram, new medicaments, and fresh surgical techniques promise recovery to countless victims of the disease and to their physicians. However, there are obstructions as formidable as the seizure barriers already passed. The good physician cannot abandon his charges at this point, but he must study these obstacles and assist in surmounting them. He must match modern drug and surgical therapy with practical sociopsychological therapy. The good physician is concerned not only with turbulent brain waves but with disturbed emotions and with social injustice, for the epileptic is not just a nerve-muscle preparation; he is a person, in health an integrated combination of the physical, the mental, the social, and the spiritual. Disruption of any part can cause or aggravate illness.

EMOTIONAL PROBLEMS

Epilepsy is not characterized by a continuous prolonged condition but a recurrent spasmodic crisis. A healthy person, happy and productive, is suddenly bereft of awareness, of control of body and mind and becomes a fearful spectacle to all who behold him. He wonders about the reasons for these attacks and whether he will finally be institutionalized. Emotional and social dislocations represent the debris of successive inundations. Though present in nearly all epileptics, they differ widely in substance and degree.

Psychological and emotional consequences of seizures, such as anxiety, uncertainty, and fear, may accompany any serious disease; however, for the victim of other illnesses there is public sympathy and support and for the epileptic only, public dislike and rejection. The emotions of the epileptic then include shame, depression, bitterness, secrecy, and deception. In a vicious circle, consequence becomes cause and anxiety aroused by social mistreatment can precipitate some of the seizures. These emotional difficulties are on the conscious level and fully understandable (and treatable) by an understanding physician, whatever his specialty.

Emotional perturbations may accentuate but do not initiate epilepsy. If they originate the illness, it is not epilepsy but hysteria. Epilepsy is due to physiological, not psychological, disturbances. The brain waves are evidence of this. Nevertheless, some Freudians insist that a devastating convulsion is the person's unconscious attempt to retreat to the comfortable cavern of the uterus. They believe that hope of release from this "womb sickness" lies in protracted and expensive delving into childhood experiences and frustrations. We believe this view is erroneous and that the practice of psychoanalysis, sans medicine, for the person with uncomplicated epilepsy is malpractice. True, some epileptics, in company with many persons who are physically normal, have aberrations of thought or of personality that require the aid of the mind specialist; however, this is afield from the restricted subject of epilepsy.

Psychic seizures relate to the temporal lobes. Certain hallucinations, automatisms, and amnesias, some with criminal content, may be epileptic seizures. The diagnosis is supported if spikes from a temporal lobe appear in the electroencephalogram. The epileptic may have mood or personality changes that accompany the seizure state. After successful drug or surgical treatment of the epilepsy, these changes may vanish.

The restrictions, justified and unjustified, that are placed on the person's activities seriously affect his prospects and accomplishments; however, the larger injury is not apparent. Repeated rebuffs lead to timidity or to irritations and anger ending in aggressiveness and antisocial behavior. But the most grievous injury is to the person's spirit, which assumes the furtive fear of the hunted, the guilt of the criminal, the sense of uncleanness of the patient with leprosy. Decay of confidence, ambition, and hope may follow.

The emotional reactions aroused by epilepsy are not confined to the person seized. They are communicated to his family and close friends, often in exaggerated form. Epilepsy is then the immediate concern not of 800,000 but of at least 4 million persons. The pressure of anxiety and shame does not become eased through shared experience, because the fact of seizures, the family feels, must be kept a secret. Shamed secrecy maintained over the years is a corroding influence. Shakespeare in "Hamlet" had a phrase for it, "But like the owner of a foul disease, to keep it from divulging lets it feed even on the pith of life." The epileptic knows that at any moment a convulsion may reveal his carefully guarded secret to a gaping public.

Every patient and every family confronted with epilepsy has apprehensions born of general misunderstanding. The physician can counteract these sentiments by words such as these: "Epilepsy is not a mysterious disease and certainly is no disgrace. Simple epilepsy, like diabetes, is a metabolic disorder. It is, perhaps, an enigma, but not a stigma. It does not tend to get worse with time. There are effective medicaments. The mind is rarely affected. A child should continue schooling, and the adult should work. Activity is an antagonist of seizures. Marriage and children are not necessarily precluded. Given social acceptance, the great majority of patients can lead normal lives."

General conclusions such as these must be tailored to fit the individual person. The good physician must search for and dispose of specific questions that fester in the

---

From the Children's Medical Center.

Read before the Section on Nervous and Mental Diseases at the 102nd Annual Session of the American Medical Association, New York, June 3, 1953.

This article is No. 59 in a series, Studies in Epilepsy. The Rockefeller Foundation and the United States Department of Public Health, Social Security Agency, aided in this study.

mind of a patient and his relatives. Because most anxieties about epilepsy are unfounded, most persons should leave the physician's office more hopeful than when they entered. Maintenance of the person's good hope and morale is more important than adherence to details of doubtful importance such as the time of taking medicine, the diet, and avoidance of excitement.

Unnecessary prohibition of social events or of sports such as bicycling, horseback riding, or swimming may affect the relationship between the child and his parents or his physician. To understand the patient's anxieties and to do something about them takes a sympathetic understanding of the person and his emotional problems. This many physicians lack. For example, the writings of John Hughlings Jackson, epilepsy's great benefactor, display no spark of interest in the patient as a person.

Thus, for the patient adequate treatment hinges on finding an adequate physician. The patient wants to be sure that the physician knows or will inform himself about epilepsy, that his words can be trusted, and that his interest is genuine. An incorrect diagnosis can be forgiven, but distraught patients do not forget the impatience, callousness, and downright inhumanity displayed by a few physicians, some of them specialists in high places. Scientific interest is no substitute for doing good just for love of goodness. As by osmosis, the trusted physician conveys confidence and hope to the downhearted. In return, through intimate association with the cheerful endurance and courage of his patients, he may receive more than he gives.

The physician's treatment of emotional and social handicaps involves two fields. The first is personal contact with the patient and his family and friends. The disability due to epilepsy for different persons is from near 0 to near 100%. In the latter zone are those, usually children, who are beyond restoration of reason or of health. The physician who can communicate courage in such a disaster is extraordinary. "The physician is privileged," said Dr. Holmes, "to cure seldom, to relieve often, to comfort always." The second contribution is correction of the public misunderstanding of epilepsy and revision of laws that discriminate unfairly.

PUBLIC RESPONSIBILITY

The widespread discrimination against the epileptic is the heritage of many centuries during which there was no treatment and the epileptic inmate of the insane asylum or the town idiot was considered representative of all those who had convulsions. Because of the electroencephalograph and modern drug and surgical therapy public prejudices are fading. However, mistaken conceptions of early physicians and politicians have hardened into rigid laws and have been inherited. "Demon possession" is dated, but some laws contain a chain-gang-like procession of words no less sinister: the criminal, the insane, the morally and mentally defective, the epileptic. These, some statutes intone, shall not be accorded certain general rights.

For example, present immigration laws forbid the entrance of an epileptic into the United States even on a visitor's visa, unless the seizures are due to brain damage. The judge of a supreme court bringing his daughter for medical advice was detained at Ellis Island and required to post bond that he would leave. A music teacher coming from Canada had phenobarbital in her suitcase; she was taken from the train, not permitted to communicate with those expecting her, and returned home under guard. A Canadian businessman on one of his numerous trips to the United States was asked at the border why a chauffeur was driving; that ended his visits. Certain rights tend to be curtailed either by law or by public practice. Three are outstanding: the right to learn, the right to marry and bear children, and the right to work.

EDUCATION

Mental and physical activity results in formation of the acids that tend to inhibit epileptic seizures. The epileptic person needs education also as an offset to his handicap, as a stimulant to morale, and for social development. The departments of education of certain states deny to him the facilities of rehabilitation, but the largest difficulty is the complaint of teachers and the parents of other children that the epileptic child is a hindrance to the healthy. Yet the child whose seizures are reasonably controlled can be a positive asset in the classroom. Deft handling of convulsions is a lesson in first aid. Association with a person who carries on in spite of such a handicap is a lesson in brave living. One must reconsider the effect of the sight of a convulsion on school children when the murder and mayhem that they view every night on television is remembered.

Another difficulty is the inherited conception of mental deterioration and an unpleasant personality. Too little has been written about the majority group, those treated as office patients. Under Dr. Alice Collins, 600 of our patients have been given routine intelligence tests. The average score was 109 (90 to 110 being the normal range). Those with evidence of brain disease scored about 7 points below the metabolic (essential) group. Not epilepsy but natural endowment or acquired brain disease determines mentality. The older the patient, the higher the intelligence quotient. Of the older group with normal mental states, 28% had a score of 120 or more; hence they are classed as mentally superior.[1] However, uncertainty of acceptance by schools increases with the ascent of the educational ladder.

Schools of higher education, to the number of 1,676, were asked regarding acceptance of educationally qualified epileptic students.[2] Only 21% did not reply; 21% said epileptics were admitted if certain conditions were met; 44% had not formulated a policy; and 14% did not accept them. Distribution of answers with respect to the type of education offered is shown in figure 1. Besides the type of education offered, the size of the student body, the section of the country, the presence or absence of a department of student health, and previous experience with epileptic students were items that influenced the degree of hospitality. Many schools criticized family physicians for lack of candor; many asked for guidance.

---

1. Collins, A. L.: Epileptic Intelligence, J. Consult. Psych. 15: 392-399 (Oct.) 1951.

2. Lennox, W. G.; McBride, M., and Potter, G.: The Higher Education of Epileptics, Epilepsia 3: 182-197 (Sept.) 1947.

MARRIAGE

Discouragement and prohibition of marriage stems from the Dark Ages. The Swedish law dates from 1757.[3] Seventeen of the United States forbid marriage. The discrimination is not practiced because the degree of inherited or physical impairment is unusual, for obesity or diabetes is probably a greater threat to life than essential (metabolic) epilepsy, and migraine is more clearly hereditary. The ancient fear is of mental decay. But the cause of decay, when such is present, rests not on the metabolic disturbance of brain cells that causes simple epilepsy nor (except rarely) on the seizures themselves but on some structural damage to the brain. Such damage is usually acquired subsequent to conception and hence is without genetic influence. The federal law that forbids entrance of the epileptic without brain damage but admits the one whose seizures are due to such damage (and is the likelier to become a public charge) is, of course, ridiculous.

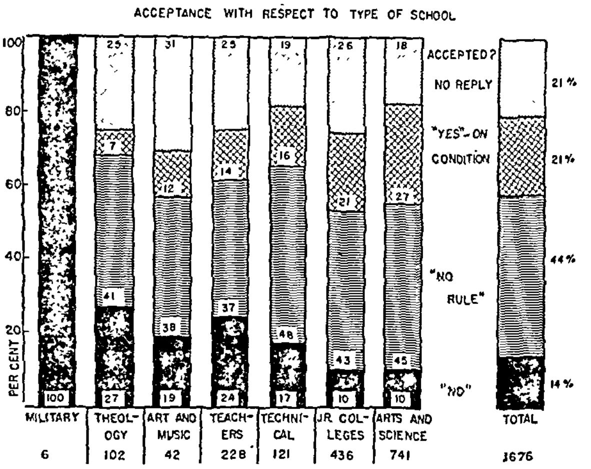


Fig. 1.—Distribution of replies from questionnaires sent to 1,676 colleges and universities with reference to the type of instruction given. The number of schools appears at the bottom; numbers within columns are percentages.

At this section meeting three years ago one of us presented electroencephalograms and other data on 122 twins subject to seizures.[4] The series now numbers 155 pairs. That a genetic factor (probably recessive in type) is important cannot be questioned, but five other considerations must also be weighed: 1. The degree of heredity for epileptics varies widely. The average epileptic, if such existed, could expect that the chance for seizures in any given child would be about 1 in 30, but there would be a 50-50 chance that these would be limited to a few in childhood. Hence, likelihood of recurrent attacks would be perhaps only 1 in 60, or three times the chances of the average nonepileptic. A few of these cases, the most serious, would be the direct result of some acquired brain disease. 2. Epilepsy per se is not inherited, and only the tendency is. Hence carriers of the tendency, many times more numerous, are genetically much more important than the affected. Unless carriers are controlled, even sterilization of all epileptics would not appreciably reduce the incidence for many generations. 3. Possession by parents of transmissible mental and physical traits that are desirable may outweigh an undesired tendency to seizures on the part of one parent. 4. A transmitted predisposition, what Galen called "an aptitude of the body," is no more important for epilepsy than for many other diseases. Progeny denied for one should be denied for all. 5. Methods of prevention and control of acquired epilepsy are at hand. Prevention of brain disease and also successful drug treatment have advanced importantly in recent years, and additional gains are probable.

Certainly persons with strong evidence of heredity of seizures and of poor mental or physical traits should not procreate. They might marry and practice continence or, if not Catholic, birth control. Clearly the case of each couple proposing marriage must be judged individually. Only rarely do we find it necessary to give adverse advice to those who consult us. Because physicians were responsible for the unfair laws of the past century, they have a present duty to press for their annulment. Under leadership of Dr. Edward Schwade, Wisconsin's marriage law has recently been rescinded. Although these laws are rarely enforced, the emotional trauma of the stigma persists.

The laws and public opinion on marriage and birth rates have had some effect. In Sweden the law against marriage, nearly 200 years old, has not reduced the marriage rate except for those who contracted the disease early or who were mentally affected; however, the live births per patient numbered only one-half of the 3.3 children per family for all Sweden.[3] We have tabulated data concerning 943 office patients 18 years of age or older. The proportion who are married (figure 2) for the total group is 45.5%. Among 143 clinic patients in Montreal,[5] the proportion was 37.1%. The U. S. census for 1940 reported 68.9%. The men of our group were married in the proportion of 43.4% and women 48.1%; corresponding percentages for the U. S. population in 1940 were 65.2% and 72.7%, respectively.

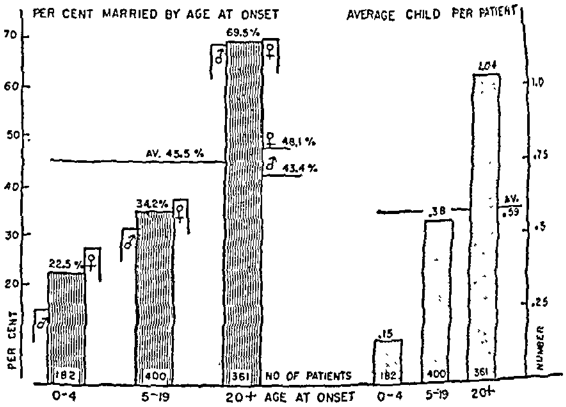


Fig. 2.—Of 943 epileptic patients, the percentage who married and the average number of children (of the 943 patients) with reference to the age of patients at the onset of epilepsy are tabulated. In this and figure 3 *numbers at base of columns refer to patients.*

The marriage rate of patients is depressed by those whose epilepsy began early in life. (Febrile or isolated seizures of childhood were disregarded.) If the onset was in the first decade, the marriage rate (22.5%) was only a third of the rate (69.5%) if the illness began at

---

[3] Alström, C. H.: A Study of Epilepsy in its Clinical, Social and Genetic Aspects, Acta psychiat. et neurol. (supp. 63) pp. 1-284, 1950.

[4] Lennox, W. G.: The Heredity of Epilepsy as Told by Relatives and Twins, J. A. M. A. 146: 529-536 (June 9) 1951.

[5] Thomas, J. C., and Davidson, E. McL.: Social Problems of the Epileptic Patient, Montreal Neurological Institute, Montreal, 1949, p. 64.

20 years or later. This difference is greater for men than for women. Chances of marriage for persons whose seizures began after the age of 19 were the same for men (69.3%) and women (69.7%), but if seizures began in the second decade the rates were for men 30.9% and for women 37.7%. If they began in the first decade, the rate of the men (14.8%) was only half that of the women (29%). For the whole group, the birth rate (0.59 child per patient) is proportionately far less than the marriage rate (45%).

That a long history of seizures should prejudice the chances of marriage is to be expected, although mentality and the frequency and character of attacks should also play a part. The relative disadvantage of the man may be due to his role as wage earner. The housewife would not lose her job because of seizures. Neither this series nor that of Alström[3] took into account the age of patients and whether in those with late onset the epilepsy antedated marriage. In the Montreal study seizures of 53% of the 53 married patients were present before marriage. The average age of our patients was about 32, which means that the full expectancy of marriage and children had not been realized.

Figure 2 also gives the average number of children of the 943 patients, again divided on the basis of the person's age at the initial attack. For the whole group there was a trifle more than half a child (0.59) apiece. The numbers reflect the additive effect of both marriage and birth rates. Thus, of the 182 who became epileptic in the first decade there was but 0.15 child for each; for those epileptic after 19 years 1.04 child for each, a sevenfold increase. There was only a threefold increase in marriages between these two groups; hence a long history of seizures reacted especially on births.

Of more particular interest are birth rates for the 493 patients who achieved marriage. The results are displayed in figure 3. The proportion with one or more children was 41% when seizures began in the first decade, 62% for the second decade, and 67% when attacks began after the age of 19. Here again the proportion of women was higher than for men; namely, 64% against 60%. Certainly the wife's epilepsy did not interfere with her child bearing; however, even the top rate of 67% is below the expected. In replies received from 939 married nonepileptics 86% had one or more children. Among 3,022 American college teachers, 80%[6] had children.

Figure 3 shows the number of children per married couple. The average total was 1.28. If the patient-parent had seizures in the first decade the number was 0.66, in the second decade 1.1, and after the age of 20, 1.5. In this tabulation the number of children was the same for men and women. Even in the favored group in which seizures began after the age of 19, the number of children, 1.5, is well below the number of children in the average American family. In a study of the group of 939 persons already mentioned the average number of children was 2.3.

Of the 554 children, 12, or 2.2%, had experienced one or more seizures. This proportion (one in 45) does not seem large enough to dissuade parents from having more children, but the general hue and cry about heredity is often a deterrent to the more conscientious. The data suggest that natural selection rather than legal restraints determines the marriage of epileptics and that those who marry tend to exercise birth control. It is still questionable whether this is true for patients who are Catholic, and if not whether lack of control would help to explain the reputed high incidence of epilepsy among Catholics.[7] Obviously, the whole subject of marriage deserves continued study.

EMPLOYMENT

Perhaps the most difficult social problem for those who treat the adult epileptic is employment. Of what use is it to rid the person of fits, says the physician, if he remains an economic invalid because he is denied the right to work. Enforced illness is a menace to pride and morale, but it also drains the public purse. To sustain in idleness masses of men and women because of a dislike of seizures is wasteful folly. As a rule, employment is refused the known epileptic. Hence, many conceal their history and may be given work (such as the operation of moving vehicles) that is hazardous for themselves and the public.

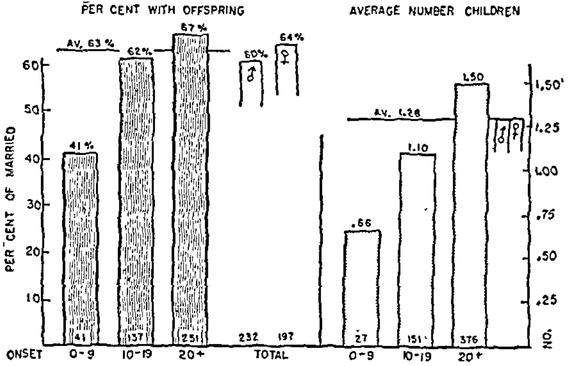


Fig. 3.—Of 429 patients who married, the proportion with offspring and the average number of children per marriage, with reference to the age of patients when seizures began, are tabulated.

In four states epilepsy, like syphilis and smallpox, is reportable to health authorities. The effort to prevent highway accidents is laudable, but in catching the rare offender lawmakers conveniently forget the everyday one, the alcoholic. Besides violating professional confidence, the law tends to keep the patient from seeking the treatment he needs or it encourages the physician to hedge his diagnosis. Permission to drive should be considered individually, depending on the advice of a physician qualified in epilepsy. Some physicians act obstructively. Thus, a company physician specified that a worker who, with medication had been seizure-free for five years, must have a companion with him always, a condition that could not be fulfilled. Civil Service requires a sedentary job, something both undesirable and unnecessary.

Refusal to employ is based in part on the emotional reaction of fellow workers or of customers to the sight of a seizure. More important, however, is the supposition that the epileptic will have a high accident rate, which might increase the employer's insurance rates under the provisions of the Workmen's Compensation Law. As a matter of fact, an unusual accident rate has not been demonstrated. Any observed rate would be artifically high because it would be based on only a portion of the epileptic enrollment. Those who have not had attacks and injury while at work are not known to the management. More general enactment of "second injury" provisions would solve the difficulty. The American Federation of the Physically Handicapped proposes an assessment of 0.1% of wages. This would provide a special fund from which compensation would be paid for injuries the result not of the employment but of the person's disability.

---

[6] Lennox, W. G.: The Health of Missionary Families in Japan and China and a Selected Group in America, Department of Economics, University of Denver, 1922.

[7] Roberts, B. H., and Myers, J. K.: Religious Sects and Mental Health, read at the American Psychiatric Association, May 8, 1953.

Data collected between 1931 and 1941 from a group of 1,105 clinic patients 18 years of age or over found 73% employed.[8] The employers presumably in most cases were unaware of the epilepsy. Among 639 men, professional men, business men, and college students formed 27%; clerical and skilled workers 28%; sales clerks and servants 20%; and unskilled laborers 25%. The danger of secrecy is emphasized by a 4% representation of taxi, bus, and truck drivers.

Certainly, except for the increasing emphasis on accident compensation, the social conditions of the epileptic are improving. A Gallup poll of public opinion in 1949 [9] disclosed that 57% of persons knew an epileptic; 56% had witnessed a seizure; 57% would not object to having an epileptic in school with their children; 59% did not think epilepsy a form of insanity; and 45% thought they should be employed in jobs like other persons. The relative low position of employment may reflect failure of the question to eliminate jobs clearly dangerous. Persons with a college education gave the most favorable answer to all these questions.

To acquire additional and more recent evidence from the private patient class of patients, we sent questionnaires to 375 office patients seen in the past two years. Replies were received from 173 (46.1%). Ages were from 20 to 65, the average being 32 years. Seventy-five per cent had gone beyond grade school, 54% through high school, and 21% through college. Excluding housewives and students not specifically employed, 80% of the remaining 140 persons were employed. Of the 112 with jobs, 19 were in protected positions, employed by relatives or themselves. Of the 28 without a job, epilepsy was the reason in 15 (54%). Thus, of the whole 140, only 11% were unemployed because of their seizures. As for the difficulties of securing employment, 70% of 149 replying said that epilepsy had not prevented getting a job; however, whether prospective employers had been informed of the illness was not specified. Of 91 men who were not in protected employment, the illness was known to the employer in 55%. In the known cases the patient felt in almost every instance that he was getting fair treatment. The unions knew about the seizures in less than 4% of cases. Of 140 persons, 89 (63%) had experienced seizures while at work. Fifty, or 35%, had been discharged because of the illness. A seizure on the job was responsible in 40 cases. The employer heard of the illness through others in 10. In reports from 156 persons 15, or 9.6%, experienced some injury while at work. Of these 15, 2 were fired and 2 signed papers for release from compensation. Replies of patients emphasize the crucial role of adequate medical treatment. Above all they appealed for efforts to further a better understanding on the part of the public.

A more searching analysis of the work history of a larger group is needed. We members of the Physicians League Against Epilepsy have been remiss in not collecting a body of data showing the employment and accident record of patients with demonstration of what a good record this can be, given proper medical treatment and job placement

PHYSICIAN EPILEPTICS

As competition increases, employment becomes more difficult. Maximum competition is encountered at the doors of medical schools. Important advancements in certain diseases have been made by men who themselves have that disease. Yet, the applicant for training in medicine who admits epilepsy is at a severe disadvantage.

Experience with 43 epileptic physicians, a small subgroup of the employed not included in the preceding study, is appropriate for this occasion. Usually the self-employed are in a preferred position; however, the public that hires the services of a physician may be even less tolerant than the factory foreman. This accounts for the hesitancy of medical schools to admit epileptics. Seizures began before medical school in 8 of the 43 and during school years in 3. Of the eight, five (two pediatricians, an internist, and two neurologists) have specialized in epilepsy. Specialties represented are: internal medicine 10, surgery 9, pediatrics and psychiatry each 4, general practice 3, roentgenology, anesthesiology, laboratory technology, gynecology, and neurology, 2 each, and tuberculosis, research, and ophthalmology 1 each. Two physicians hold full professorships in medical schools.

Twenty-four had grand mal alone, 12 grand mal and psychomotor disturbances, 1 grand mal and petit mal, and 6 psychomotor disturbances alone. Nine died: two from brain tumor and one each from diabetes, lung cancer (he was a chain smoker), cerebral hemorrhage, fall in a seizure, burning, drowning, and unknown causes.

The social and emotional complications of this group seem to have been greater than for an average group, and follow-up has been unusually difficult. Three of the physicians had only one seizure. In 10 others seizures, at last report, had been absent for three years or longer. The others have carried on in spite of epilepsy. Perhaps of greatest interest is the fact that, so far as is known, only one has had to abandon the practice of medicine because of his seizures. As already stated, five have made the study and treatment of epilepsy their life interest. Epilepsy is most in need of dedicated physicians. What better source than physicians who are themselves affected?

SUMMARY

Epileptics and those who treat them are today thrice blessed. First, they have the electroencephalograph, a device that displays essential disease activity of the brain. Second, they have the benefit of new medicines and of fresh surgical techniques. Third, they have the stimulus, the exhilaration of a fight yet to be fully won, a battle against ignorance, prejudice, and fear.

300 Longwood Ave. (Dr. Lennox).

---

[8] Lennox, W. G., and Cobb, S.: Employment of Epileptics, Indust. Med. 11: 571-575 (Dec.) 1942.

[9] Caveness, W.: A Survey of Public Attitudes Toward Epilepsy, Epilepsia 4: 19-26 (Dec.) 1949.

USE AND ABUSE OF CORTISONE AND CORTICOTROPIN (ACTH) IN DERMATOLOGY

Paul A. O'Leary, M.D.
and
John G. Erickson, M.D., Rochester, Minn.

Four and a half years have elapsed since we first treated patients who had lupus erythematosus and psoriasis with cortisone, and in four previous reports [1] our colleagues and one of us (P. A. O'L.) have recorded our experiences with and impressions of the value of cortisone and corticotropin (ACTH) in the treatment of various dermatological conditions. From the beginning, it was apparent that cortisone did not cure patients with skin diseases, although in some cases the symptoms were minimized and in other cases of fatal diseases the life expectancy may have been extended. At the present time, cortisone and corticotropin are used extensively and sometimes indiscriminately in the treatment of cutaneous diseases of all types, and patients with dermatoses that run a short and self-limited course and those with fatal skin diseases now receive these drugs uniformly. It is not a new experience for physicians to use a drug that does not cure but that may give temporary symptomatic relief and while doing so lead to the production of serious sequelae. Both cortisone and corticotropin have these qualities. The administration of excessive doses of these drugs or their prolonged use may produce serious and prolonged undesirable reactions, which sometimes disappear when treatment is discontinued. The experience thus far accumulated suggests that these unfavorable sequelae may become manifest months after the administration of the drug is stopped and that they may be of a serious nature. It is evident that patients differ in their tolerance of these hormones.

The physiological effects of the steroids have been recorded repeatedly, but they are significant enough to warrant restating.[2] Although the details of the mechanism of their action are not completely understood, it is now accepted that the administration of cortisone or corticotropin suppresses the secretion of endogenous adrenocorticotrophic hormone by the anterior lobe of the pituitary body. In addition to the unfavorable side-effects as noted in the skin, namely increased pigmentation, hirsutism or alopecia, seborrhea-like dermatitis, acne, atrophic striae, and the "moon face" of Cushing's syndrome, it is necessary to bear in mind that cerebral disturbances such as euphoria, depressed states, frank psychoses, convulsive attacks, and changes in personality may develop. In addition, alterations in the electrolyte metabolism resulting in retention of salt and water associated with edema and gain in weight may require adjustment of the intake of sodium chloride and potassium. The transient hyperglycemia usually disappears when administration of the drug is stopped, although the hypertension that develops may persist and be serious. Intercurrent infections, such as tuberculosis, peritonitis, streptococcic and staphylococcic infections, and influenza, may be masked by the administration of these drugs and accordingly overlooked.

Gastric and duodenal ulcers may bleed or perforate; suppression of gonadal activity with irregular menses and decrease in libido may be noted, and local urticarial reactions and anaphylactic shock may follow intramuscular injection of corticotropin. Teicher and Nelson [3] called attention to the appearance of osteoporosis in cases in which cortisone had been administered for a long time. This may be related to a prolonged negative nitrogen balance. The question of hypercoagulability of the blood as the result of steroid therapy is not definitely established, as there are advocates for and against the idea. Thromboembolic phenomena and thrombophlebitis may occur, but the cause or mechanism of their production is unknown.

According to Sulzberger and Baer,[4] the actions of corticotropin and cortisone on cutaneous physiological, pathological, and immunologic processes have been studied by Herrmann, Sauer, Millberg, and their associates at the New York University Post-Graduate Medical School and by other investigators elsewhere. The following actions were mentioned: "The skin temperature tends to become elevated. . . . The delivery of sweat to the surface tends to be increased. . . . The delivery of sebum to the skin surface tends to be diminished. . . . The flow in the peripheral blood capillaries tends to be accelerated. . . . The nonallergic and allergic immediate urticarial response to scratch or intradermal tests appears to remain grossly unaltered or to be but slightly diminished. . . . According to some reports, in many cases the 48 hour tuberculin type response undergoes a more or less marked reduction or even becomes abolished. . . . There appears to be an inhibitory effect on the activity of hyaluronidase. . . ."

Ill-defined clinical signs of varying degrees of severity that suggest depressed adrenal cortical function may occur in the form of weakness, fatigability, and a drop in the blood pressure.[5] These may be noted after the

---

From the Section of Dermatology, Mayo Clinic (Dr. O'Leary). Dr. Erickson is a Fellow in Dermatology, Mayo Foundation.

Read before the Section on Dermatology and Syphilology at the 102nd Annual Session of the American Medical Association, New York, June 2, 1953.

1. Brunsting, L. A.; Slocumb, C. H., and Didcoct, J. W.: Effects of Cortisone on Acute Disseminated Lupus Erythematosus, A. M. A. Arch. Dermat. & Syph. **63**: 29-48 (Jan.) 1951. Kierland, R. R.; O'Leary, P. A.; Brunsting, L. A., and Didcoct, J. W.: Cortisone and Corticotropin (ACTH) in Dermatology, J. A. M. A. **148**: 23-26 (Jan. 5) 1952. O'Leary, P. A.: Symposium on Dermatology: Cortisone and Corticotropin in the Treatment of Cutaneous Diseases, Postgrad. Med. **12**: 10-14 (July) 1952. Brunsting, L. A.: Cortisone and Corticotropin (ACTH): Their Effects on the Skin and Its Diseases, Brit. M. J., to be published.

2. Sprague, R. G.: Cortisone and ACTH: A Review of Certain Physiologic Effects and Their Clinical Implications, Am. J. Med. **10**: 567-594 (May) 1951.

3. Teicher, R., and Nelson, C. T.: Osteoporosis and Pathological Fractures Following Treatment with ACTH and Cortisone, J. Invest. Dermat. **19**: 205-210 (Sept.) 1952.

4. Sulzberger, M. B., and Baer, R. L.: Present Status of ACTH, Cortisone and Compound F in Dermatologic Management: A Guide for the General Practitioner, in Year Book of Dermatology and Syphilology, Chicago, Year Book Publishers, Inc., 1952, p. 10.

administration of cortisone or corticotropin is stopped. Nausea and depression also may be present. All taken together indicate that the administration of the drug has been discontinued too rapidly. These symptoms may persist for varying periods of time and are not dependent on the dose of the drug or on the duration of the treatment. In addition, the excretion of 17-ketosteroids is sometimes decreased shortly after administration of cortisone is started, and this decreased excretion may persist during administration of the drug and for a variable period thereafter. In fact, this decrease is used as a test for adrenal function by some investigators. Neither the shortest period of treatment nor the minimal dose of cortisone that will produce suppression of adrenal cortical function is known, although it is suggested that any dose that equals or exceeds the daily requirement may suppress the endogenous function of the adrenal cortex, and this dose may be as small as 20 mg. a day.

Salassa, Keating, Bennett, and Sprague [5] said that cortisone has been known to produce atrophy of the adrenal cortex and thus impair adrenal cortical function. These effects may last for a considerable time after the administration of cortisone is discontinued. They are believed to be the result of impaired production of endogenous adrenocorticotrophic hormone by the anterior lobe of the pituitary body. Adrenal atrophy may lead to acute insufficiency of the adrenal cortex in cases in which the patients undergo any stress such as that associated with a surgical procedure. These authors said that the administration of corticotropin may produce the same effects as the administration of cortisone.

The administration of cortisone in cases of dermatological disease may produce other clinical effects, which cannot be explained at this time. In some cases, the morphological features of the disease change and are replaced by another clinical syndrome. This effect is exemplified in cases of the mild systemic type of lupus erythematosus in which the features of lupus erythematosus may disappear and be replaced by the classic clinical and pathological signs of psoriasis. Patients who have incompletely generalized dermatitis may be benefited by the first course of cortisone therapy, but they may not receive any benefit from the second course after the disease has recurred. In some cases of classic dermatosis, the administration of cortisone or corticotropin distorts the morphological features of the lesions so much that they cannot be recognized. The generalized hyperpigmentation that may follow a course of cortisone therapy may confuse the clinical picture. Diseases such as psoriasis and lichen planus, which occasionally become generalized, may spread rapidly and become universal while the patient is undergoing treatment with one of the steroids.

Contraindications to the use of cortisone or corticotropin include heart failure, hypertension, renal insufficiency, psychotic tendencies, duodenal ulcer, and tuberculosis. Diabetes mellitus is not a contraindication to the administration of these drugs, since it is not difficult to control unless large doses of these drugs are used.

BENEFICIAL EFFECTS OF CORTISONE AND CORTICOTROPIN

There are several indications for the use of cortisone and corticotropin, and certain benefits follow their administration in dermatological practice. It is now generally agreed that neither of these drugs is curative and that the favorable results of treatment of different types of dermatoses with these drugs are variable. In those diseases in which treatment is said to produce marked improvement, the good results do not appear regularly in each case. On the other hand, in cases in which benefit from treatment is not anticipated the patients occasionally will display evidence of remarkable improvement. This therapeutic inconsistency tends to make treatment with these drugs a trial procedure in each case. Corticotropin and cortisone have been of value in two diseases that cause death, namely, pemphigus vulgaris and systemic lupus erythematosus. They apparently are more effective on the vulgaris type of pemphigus than they are in the foliaceous and vegetative types.

If a remission occurs, it lasts longer in cases in which the disease is of the foliaceous type than it does in cases in which the disease is of the vulgaris type. In most cases of pemphigus, the oral administration of 200 mg. or more of cortisone per day will stop the formation of blebs and blisters. In an occasional case, the oral administration of 400 to 500 mg. of cortisone per day or the intramuscular injection of 100 to 150 mg. of corticotropin may be necessary to control the pemphigus. We have not found it necessary to administer larger doses. Oral administration of 50 to 100 mg. of cortisone per day usually is necessary to maintain a remission, and we have found that potassium chloride and ascorbic acid are valuable adjuncts. When the administration of cortisone is discontinued or its dose is reduced too rapidly, the cutaneous lesions usually recur, and the recurrent lesions are severer and more resistant to treatment than were the original lesions.

In a few cases of pemphigus vulgaris in which cortisone has been administered for three years, there has not been any recurrence of the disease.[6] In other cases of pemphigus the disease has not recurred although the administration of cortisone has been discontinued. Many patients have not derived any benefit from the administration of cortisone or corticotropin and have died of the disease.

In cases of lupus erythematosus of the acute and severe systemic type, administration of cortisone frequently will produce a remission, which may be maintained for several years. Although the severity of the clinical symptoms is lessened, laboratory examinations reveal little change since hematological examination still discloses lupus erythematosus cells, an increased sedimentation rate of the erythrocytes, and leukopenia, and urinalysis reveals evidence of renal disease. The clinical improvement is characterized by an increase in sense of well-being, by a decrease of fever, and by a lessening of the severity of the arthralgia and facial erythema. A decrease in the extent of the pleural and peritoneal effusion occasionally will occur. In the acute type of this disease, a recurrence is uncontrollable if it develops while the patient is receiving cortisone. In the subacute types of lupus erythematosus, in which the clinical symptoms are less severe than they are in the acute type and the laboratory findings are less significant, the symptomatic results are less striking. In our experience, with a rare striking exception, the remissions that occurred in most of our patients with acute systemic lupus erythematosus have been of short duration and the patients eventually have died of the disease. Neither time nor space warrants our enumerating detailed experiences in the treatment of other cutaneous diseases with cortisone or corticotropin, but there have been decidedly more therapeutic disappointments than successes.

---

[5] Salassa, R. M.; Keating, F. R.; Bennett, W. A., and Sprague, R. G.: Postoperative Adrenal Cortical Insufficiency: Occurrence in Patients Previously Treated with Cortisone, J. A. M. A. 152: 1509-1515 (Aug. 15) 1953.

[6] Lever, W. F.: Personal communication to the authors.

In cases of sarcoidosis, lymphoblastoma, dermatomyositis, scleroderma, and acrosclerosis, the results of treatment with cortisone or corticotropin are unsatisfactory. In fact, we now believe, contrary to our early opinion, that acrosclerosis is a definite contraindication to the use of corticotropin or cortisone. We know of six cases in which the patients, who were young women with acrosclerosis of two years' duration or less, died of cerebrovascular accident associated with severe hypertension and renal disease. These are not common complications of acrosclerosis but are significant in view of the fact that they appeared three to four months after the administration of cortisone was started. Since necropsy was not performed in any of these cases, evidence that cortisone was responsible for the development of these complications is presumptive. We feel, however, that these cases are worth recording. Neither corticotropin nor cortisone will produce permanent improvement in cases of cutaneous sclerosis of the localized, generalized, or acrosclerotic type.

The influence of cortisone and corticotropin on the less severe skin diseases, those characterized by inflammatory cutaneous reactions, is often striking and really worth while; however, the improvement is variable and not predictable. In dermatitis venenata (poison ivy), Wrong and Smith[7] reported that the administration of cortisone produced excellent results in 8 of 15 cases of contact dermatitis due to Rhus toxicodendron (poison ivy). In these cases, it shortened the course of the disease, caused softening and drying of the blisters, and reduced the severity of the erythema and edema. Equally favorable results have been obtained in cases of acute drug eruptions, urticaria, angioneurotic edema, and erythema multiforme. In the treatment of these diseases, cortisone or corticotropin should be administered for two or three days. Cortisone should be administered orally in daily doses of 200 mg. or less, or corticotropin should be administered slowly by the intravenous route in doses of 25 to 50 mg. per day.

Some physicians believe that atopic dermatitis is helped materially by cortisone therapy. Our experience would indicate that the only significant benefit in cases of this disease is the relief of paroxysms of itching, and this is not great enough to warrant the use of cortisone. Occasionally, a remission will occur and may be maintained by constant treatment. As is true in cases of other diseases that have been mentioned, if the dermatitis recurs after the administration of cortisone, it is severe and resistant to all types of treatment.

Dillaha and Rothman[8] reported that a rapid regrowth of hair occurred after the oral administration of 100 to 150 mg. of cortisone acetate per day in cases of alopecia areata and alopecia totalis. We also noted a definite return of hair in cases in which cortisone therapy was administered, but the growth was irregular and the hair fell out when the administration of cortisone was stopped. In some cases, it even fell out while the drug was being administered. Cortisone will cause hair to regrow, but the patient is usually unable to keep it.

In an occasional case of eczema, psoriasis, seborrheic dermatitis, or similar type of dermatosis, the patients will derive great benefit from the oral administration of 100 mg. of cortisone a day for three or four days. The second or third course of treatment may not produce a similar response, and not all of the patients will be benefited by the initial course.

Although the topical application of cortisone or corticotropin generally has not proved satisfactory in the treatment of dermatological diseases, Sulzberger, Witten, and Smith[9] recently reported that an ointment containing 1, 2.5, or 5% of hydrocortisone acetate was of considerable value as an antipruritic in cases of atopic dermatitis, eczema, pruritus ani, pruritus vulvae, and localized neurodermatitis, The ultimate effects of the local application of this drug are not known. Whether or not it will cause undesirable side-effects can be determined only by further trial and study. At present, this drug is prohibitively expensive.

INVESTIGATIVE DATA

Although extensive investigations have been undertaken in the field of immunologic reactions and hypersensitivity, there is still some controversy as to the exact site of the blocking of allergic responses by cortisone or corticotropin. Perhaps the blocking occurs in the tissues rather than as an antigen-antibody neutralizing reaction in the blood. The data accumulated by various investigators suggest that (1) cortisone and corticotropin do not alter the result of skin tests with specific antigens, either urticarial or eczematous[10]; (2) these drugs do not act as antihistaminic agents or affect the passive transfer reaction[10]; and (3) they do not influence the result of the tuberculin, Dick, or Schick tests.[11] The result of most experimental work suggests that they do not protect a patient from anaphylactic shock or interfere with the delayed type of hypersensitivity reaction such as the Jarisch-Herxheimer reaction.[12] It recently has been postulated that an antihyaluronidase activity of the cortisone or corticotropin may be responsible in part for the amelioration of the collagen diseases[13]; however, none of the mechanisms suggested thus far seems to explain satisfactorily the action of the steroids in the collagen diseases.

---

[7] Wrong, N. M., and Smith, R. C.: Cortisone in the Treatment of Acute Self-Limited Dermatoses, Canad. M. A. J. **68**: 50-55 (Jan.) 1953.

[8] Dillaha, C. J., and Rothman, S.: Treatment of Alopecia Areata Totalis and Universalis with Cortisone Acetate, J. Invest. Dermat. **18**: 5-6 (Jan.) 1952; Therapeutic Experiments in Alopecia Areata with Orally Administered Cortisone, J. A. M. A. **150**: 546-550 (Oct. 11) 1952.

[9] Sulzberger, M. B.; Witten, V. H., and Smith, C. C.: Hydrocortisone (Compound F) Acetate Ointment in Dermatological Therapy, J. A. M. A. **151**: 468-472 (Feb. 7) 1953.

[10] Haxthausen, H.: Behavior of Allergic Skin Reactions After ACTH Therapy, Acta allergol. **4**: 305-307, 1951. Leith, W.; Graham, M. J., and Burrage, W. J.: Effect of A.C.T.H. on Immediate Skin Reaction and Passive Transfer Test in Man, J. Allergy **22**: 99-105 (March) 1951.

[11] Appel, S. B.; Fulton, L. A., and Orr, K. D.: Observations on Essentially Normal Young Men Treated with ACTH and Cortisone: Effects on Tuberculin, Dick, and Schick Tests, U. S. Armed Forces M. J. **3**: 373-384 (March) 1952.

[12] Sheldon, W. H.; Heyman, A., and Evans, L. D.: The Effect of ACTH on the Jarisch-Herxheimer Reaction and on the Lesions of Experimental Syphilis in the Rabbit, Am. J. Syph., Gonor. & Ven. Dis. **36**: 77-81 (Jan.) 1952.

EFFECTS ON INFECTIONS AND LYMPHOID TISSUE

Cortisone and corticotropin have a suppressive effect on inflammatory reactions and have a tendency to mask the signs of intercurrent infection. As a result, abscesses may form; tuberculous lesions may become more extensive; peritonitis, septicemia, and other serious complications may develop, and systemic fungous infections may be disseminated. These complications may not be recognized until they are far advanced. If the administration of cortisone or corticotropin is discontinued abruptly when one of these complications occurs, adrenal cortical insufficiency may develop. Cortisone and corticotropin cause destruction of some types of neoplastic tissue and normal lymphoid tissue.

CONCLUSIONS

Our therapeutic experience over the past four and a half years and our growing appreciation of the severer complications that may ensue during or after the administration of cortisone and corticotropin have led us to reduce our absolute and relative indications for the use of these hormones to the following conditions: (1) self-limited hypersensitivity reactions of severe degree unresponsive to more conservative measures, such as acute urticaria, certain acute drug eruptions, acute angioneurotic edema, acute dermatitis venenata, and erythema multiforme, and (2) serious or otherwise fatal conditions, such as pemphigus and systemic lupus erythematosus.

Although temporary benefit may be obtained from the use of these drugs in some cases of neurodermatitis and in an occasional case of dermatomyositis, psoriasis. dermatitis herpetiformis, and seborrheic dermatitis, the short duration of the improvement, the frequency of severe relapses that often are severer than the original condition, and the character of the complications that the drugs may produce contraindicate their use except under exceptional circumstances. Dermatological conditions in which there is no place for the use of cortisone and corticotropin are too numerous to list here. This group includes the great majority of skin diseases.

The effects of cortisone and corticotropin are seen in almost every system of the body. Therapeutically, their usefulness in dermatological practice is limited primarily to decreasing the reaction of tissue to injury and to decreasing allergic and hypersensitivity reactions. Although the healing of self-limited lesions may be accelerated, although chronic conditions may be temporarily ameliorated, and although life may be prolonged in cases of serious fatal diseases, the physician must weigh the potential dangers and probable undesirable side-effects, including death, of cortisone and corticotropin against the advantages in each case. Once therapy is instituted, it is necessary to maintain adequate but not excessive dosage, to discontinue administration of the drug gradually and slowly, and to anticipate the onset of complications during and after treatment.

As in the appraisal of all new therapeutic agents, the display of enthusiasm begins to wane as experience points out the inadequacies of the agents and complications produced by them. The praise for cortisone and corticotropin in the treatment of skin diseases has waned considerably in the past year, and their overenthusiastic use has stimulated us to join other authors in cautioning against their unnecessary use.

102 Second Ave., S.W. (Dr. O'Leary).

13. Miale, J. B.: Connective Tissue Reactions: Critical Review: Hyaluronic Acid, Hyaluronidase, and the Ground Substance of the Mesenchyme with Particular Reference to Collagen Diseases, Ann. Allergy 9: 545-552 (July-Aug.) 1951. Dorfman, A., and Moses, F. F.: Effect of Adrenocorticotrophic Hormone (ACTH) on Serum Hyaluronidase Inhibitor in Rheumatic Fever, Proc. Soc. Exper. Biol. & Med. 73: 667-669 (April) 1950.

COMMON WHIPLASH INJURIES OF THE NECK

James R. Gay, M.D., White Plains, N. Y.
and
Kenneth H. Abbott, M.D., Columbus, Ohio

Interest in whiplash injury of the neck was aroused by the frequency in which this type of injury was encountered in neurosurgical practice and by the chronic nature of the symptoms that were observed after an accident that appeared to be of little consequence. In our experience, most of the accidents that involved a whiplash injury of the neck were caused by a collision in which one vehicle was rammed from behind by another vehicle. Since it has been estimated [1] that about 15% of all automobile accidents resulting in death, injury, or property damage are caused by a rear-end collision, it occurred to us that whiplash injuries might be encountered frequently in general medical practice. However, very little information on this subject has been published in textbooks or in the current medical literature.

PERSONS STUDIED

Fifty persons who suffered a whiplash injury of the neck between the years 1948 and 1952 were studied. Persons who received a direct blow on the head or neck were excluded. In this study, there were 35 women (70%) and 15 men (30%). Of those injured, 70% (35) were between 30 and 50 years of age (table 1). Housewives (17 cases, or 34%) made up the largest occupational group; other occupational groups represented in this series included 7 (14%) skilled laborers, 7 (14%) persons in clerical positions, 6 (12%) persons in managerial positions, 5 (10%) semiskilled laborers, 4 (8%) persons in sales positions, 3 (6%) professional persons, and one (2%) student. Farmers and unskilled laborers were conspicuously absent in this series, although the group of 50 patients lived in or near an industrial city that is surrounded by a large agricultural region.

Read before the Section on Nervous and Mental Diseases at the 102nd Annual Session of the American Medical Association, New York, June 2, 1953.

[1] National Safety Council: Personal communication to the authors.

Each patient had symptoms and findings characteristic of a sprain of the neck. In case of a simple sprain, the symptoms consisted of pain in the lower cervical spine, limitation of motion of the neck, and spasm and tenderness of the cervical spinal musculature. Movement or jarring of the neck made the symptoms worse, and, in an acute case, it was characteristic for the patient to support the head and neck with his hands. When the injury was remote, some experienced a sensation of difficulty in supporting their head. In rare instances in which a second whiplash injury occurred, all symptoms were immediately intensified. Tenderness and spasm were often present in adjacent musculature, including the muscles of the upper thoracic spine and shoulder girdle. No abnormal reflex or sensory changes were found in the extremities. Even without the complication of a cerebral concussion or more painful condition of the neck, the patient with a sprain showed marked hypertonicity of the neuromuscular system and general nervous symptoms.

Table 1.—*Age Distribution of Persons with Whiplash Injuries by Decades*

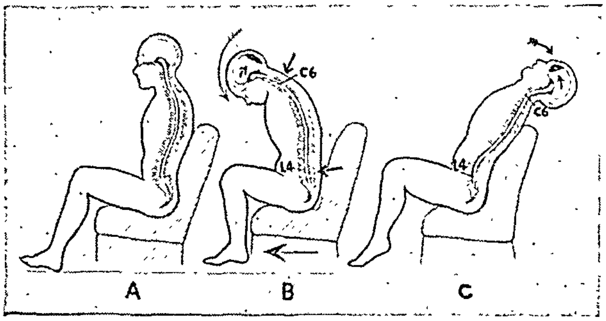
Age, Yr.	No. of Cases	%
10-19	1	2
20-29	6	12
30-39	15	30
40-49	20	40
50-59	6	12
60-69	2	4
	50	100%

The mechanics of the injury were interpreted as a sudden and forceful flexion of the neck, followed, in some instances, by several other less violent oscillations of the neck in alternating flexion and extension (see figure). The basic pathological change was mechanical trauma of the supporting ligaments of the cervical spine. The severity of the sprain was variable from case to case, but the seriousness of the injury was dependent on the number and variety of complicating conditions.

COMPLICATIONS

The commonest complication encountered was cervical radiculitis (35 cases, or 70%). These persons had intense pain in the posterior cervical region, with radiation of pain into the occipital region of the skull, lower jaw, shoulder girdle, upper anterior chest, or upper extremities. The pain was intermittent, had a sharp quality, and oftenest followed a pattern that suggested irritation of the fifth, sixth, or seventh cervical nerve root on one side. Severe cervical radiculitis was usually accompanied by marked spasms of the cervical muscles. There were occasional transitory abnormalities of reflexes and sensation in one or both upper extremities.

In 31 patients (62%), there was historical and symptomatic evidence of a cerebral concussion. These patients suffered a momentary lapse of consciousness (from seconds to one-half hour). They described a blinding or explosive sensation in the head at the time of the crash. Some recovered consciousness after the car was driven ahead several hundred feet by the impact, and sometimes the car was still in motion when they recovered consciousness. Immediately after the accident, they had a sensation of being bewildered, stunned, dazed, or dull. Headache usually developed within a few minutes or hours and was severest in the frontal region. Nervous symptoms were especially intense in this group of patients. Marked neuromuscular tension, restlessness, irritability, subjective vertigo, poor concentration, insomnia (sometimes caused by disturbing dreams of the accident), vasomotor instability, recurrent headaches, mood changes, and general nervousness developed in all of them. These symptoms were intermittent and recurrent but tended to improve within a few days or weeks. However, when there were severe symptoms from the neck injury, a profound emotional reaction due to the circumstances of the accident, or a predisposition for a psychoneurotic reaction to develop, it was usual for the nervous symptoms to return, recur, and persist for many months. By careful evaluation of the history, it was often possible to separate the symptoms of the concussion syndrome from the symptoms of psychoneurosis on a temporal basis. The mechanics of the concussion were interpreted as sudden mechanical deformity and pressure on the frontal and temporal lobes of the brain, which occurred when the forward movement of the brain was arrested against the anterior walls of the skull when the head and neck were whipped backward immediately after the initial acute flexion of the neck. It was possible that secondary and lesser concussions occurred to the frontal, temporal, and occipital lobes of the brain in some instances when multiple oscillations of the head and neck occurred in alternating flexion and extension (see figure). Another phenomenon in the production of a concussion in these cases, which may be more important than the mechanical factors already described, is acceleration or deceleration influence on brain tissue, which has been described in the experiments of Denny-Brown and Russell.[2]



Mechanics of whiplash injury; *A*, normal sitting position in automobile; *B*, collision from behind thrusts body in position of acute flexion, with maximum stresses at lower cervical and lumbar spinal regions; *C*, position of extension usually follows acute flexion posture. There may be more than one oscillation of head and neck in alternate flexion and extension. Shading of brain indicates that a concurrent concussion of the brain occurs from mechanical deformation or the influence of acceleration or deceleration.

A protruded intervertebral disk in the cervical region was diagnosed clinically in 13 cases (26%). These patients had persistent cervical radiculitis, with pain and paresthesias extending into one upper extremity or alternating in both extremities. When the pain and paresthesias radiated into the hand, the thumb and forefinger or the ring and little fingers were oftenest involved. Muscular spasm and limitation of motion of the neck were more marked in the instances of a protruded intervertebral disk than in those of cervical radiculitis alone. It was common to find tenderness over the spines of the lower cervical vertebrae. There were persistent changes in reflexes and/or sensation in the painful extremity. The brachioradialis and biceps reflexes were often either hyperactive or hypoactive when compared with those of the unaffected side. When there was loss of sensation to touch and pinprick, it was most easily demonstrated over the dorsum of the thumb and forefinger. All patients suffering from a protruded intervertebral disk were treated by conservative measures, but eventually two patients required neurosurgical intervention for removal of a protruded cervical disk.

---

[2] Denny-Brown, D. E., and Russell, W. R.: Experimental Cerebral Concussion, Brain 64: 93-164 (Sept.) 1941.

Hypertrophic arthritis of the cervical spine was diagnosed by roentgenographic examination in five patients. In each instance, the arthritic changes were most marked in the lower cervical region. All of these patients showed a persistent cervical radiculitis, which involved the lower cervical nerve roots. From a clinical standpoint, the presence of arthritis was considered a complicating factor of the neck injury. Narrowing of the lower cervical foramens was demonstrated roentgenographically in only one instance.

One patient showed subluxation of the lower cervical spine when lateral roentgenograms were taken with the neck in a position of flexion and extension. In one patient, a fracture of a lamina was detected by roentgenograms taken in an oblique direction.

The complication that was most distressing for both patient and physician was a persistent psychoneurotic reaction. More than half of the patients in this series (26 cases, or 52%) were seriously handicapped in this way. In our opinion, the circumstances inherent in a whiplash injury make all persons prone to the development of a disturbing emotional reaction.

The accident involved a sudden, violent, and unexpected jolt that was a disturbing experience. Since the victim was seldom incapacitated immediately after the accident, there was opportunity for development of considerable hostility toward the offending motorist. A tedious investigation usually followed the accident at a time when the patient was bewildered, emotionally disturbed, and uncomfortable. If an examination was conducted in a hospital emergency room or a physician's office, very little injury was found and the patient was usually sent home equipped with a vague program of rest and recovery. It was usually several hours later or during the next day that frightening symptoms began, such as pain in the neck and head, radiating pain and paresthesias in the limbs, or aching in the lower back. Most of these sensations had never been experienced before. Lacking understanding of the variety, extent, and nature of their injuries and ill-prepared to alleviate their discomfort, these patients were prone to the development of apprehension, anxiety, and neuromuscular tension.

From the clinical standpoint, the basic physical discomfort from a whiplash injury occurred from physiological hypertonus of the cervical muscles (splinting). Whenever hypertonicity of the cervical muscles occurred in response to anxiety, the patient's symptoms were definitely aggravated. Since some persons seem to be peculiarly prone to react to stress by hypertonicity of voluntary muscles, it is likely that such persons would be predisposed to the development of profound discomfort after a whiplash injury.

The symptoms of a psychoneurotic reaction were similar to the nervous symptoms that occurred after a concussion. They occurred, however, with full intensity late in the convalescent period. The development of psychoneurosis was the most important factor in delaying recovery. In some patients, the aggravation of legal action was considered important, but, even after settlement, these patients were often partially disabled by recurrent nervous symptoms. The first few hours and days after the accident seemed to be the critical period in the management of the patient, if a severe psychoneurotic reaction was to be minimized or avoided. Whenever the patient was carefully examined soon after the accident, informed of the nature and extent of the injuries, told what to expect in the way of symptoms, placed on a definite treatment program, and seen regularly with friendly reassurance, the psychoneurotic reaction that developed was mild and nervous symptoms did not delay recovery. On the other hand, when patients treated themselves, were inadequately informed about their injury, or obtained little or no relief from their symptoms by symptomatic measures, they were usually seriously disabled by a psychoneurosis and their recovery from the injury was jeopardized.

Injury of the lower back was a complication in 15 patients (30%). The basic low back injury was sprain or mechanical trauma of the supporting ligaments of the lumbar spine that occurred from acute flexion of the lower back at the time of the accident (see figure). Lumbosacral radiculitis developed in six patients with an injury to the lower back, and clinical evidence of a protruded intervertebral disk at the fourth or fifth lumbar interspace on one side developed in only four persons. One patient suffering a combined whiplash injury of the neck and protruded intervertebral disk required neurosurgical intervention for removal of the protruded lumbar disk. Minor chest injuries complicated the whiplash injury in five patients; all five were behind the steering wheel when the accident occurred.

EXAMINATION

A detailed neurological examination was performed on each of the 50 patients. Attention was directed especially to the head, neck, and upper extremities. Muscular spasm was observed and confirmed by palpation. Movements of the head and neck were tested in all directions. Pressure was applied to the cervical spine as a whole by pressing down on the head in both normal and tilted positions in order to reproduce radicular symptoms. The cervical spine, neck and shoulder musculature, and brachial plexus were palpated for tenderness. The reflexes, muscular strength, and sensation were tested in the neck and upper extremities. Similar examinations of the lower back and extremities were carried out in the case of a complicating low back injury.

The roentgen examination of the cervical spine was an important adjunct procedure in defining the pathology of the injury. Even if the results of this examination were normal, as they were in 25 cases in this series, the clinical diagnosis of sprain was supported by excluding fractures, dislocations, and arthritic changes. In our experience, six views of the cervical spine were considered important —anteroposterior, lateral, right and left oblique, and lateral views in flexion and extension (table 2). The roentgen examination was most valuable as a clinical tool when technically excellent films were obtained, and they were reviewed personally with the radiologist.

In this series, five patients were examined by electroencephalography. Two patients had cerebral dysrhythmia that was interpreted as suggestive evidence of a brain injury.

TREATMENT

Therapy began with a thorough and unhurried history and physical examination that included roentgenograms of the cervical spine. Whenever there was any question of a direct head injury or a low back injury, a roentgenographic examination of the skull or lumbosacral spine was performed. Once the injury was defined, it was important to explain to the patient the nature and variety of injuries that had occurred. Persons who suffered a whiplash injury required unusual personal attention, explanation, and reassurance. Patients who understood their condition thoroughly and who had confidence in their physician were less likely to be profoundly apprehensive, anxious, and tense.

TABLE 2.—*Roentgenograms of Cervical Spine Recommended in Whiplash Injury*

View	Look for
Anteroposterior	Tilting, fracture, or dislocation
Lateral	Straightening of curve, fracture or dislocation
Lateral flexion and extension	Subluxation
Right and left oblique	Narrowing of foramen or fracture of lamina

Emergency hospitalization was advised in the case of an acute injury whenever a patient was emotionally disturbed, had a moderate concussion, or was known to have a subluxation, fracture, or dislocation of the cervical spine. In this series 23 patients were treated in hospitals.

In the case of an acute, mild, or moderate whiplash injury, the patient was usually managed at home. Rest in bed was advised for 24 to 72 hours. Most patients were more comfortable in a firm bed, and usually it was necessary to place a bedboard between the mattress and springs. Analgesics were necessary in all cases and were most effective when prescribed at regular intervals during the day for a stated period of days. Sedation during the day and at bedtime was necessary for the first few days. When the neck symptoms were intense or when cervical radiculitis was a prominent feature, a comfortable cervical collar support was prescribed for about two weeks. It was considered important for the patient to wear this collar intermittently. In our experience, constant wearing of a neck support results in atrophy of the cervical muscle and adds the complicating factor of weakened cervical muscles to the patient's problem. Later in the convalescence, the collar was worn when the patient was likely to jar his neck, such as when riding in a car, walking over rough ground, and at the end of the day, when fatigue of the neck muscles was most pronounced. Our experience corresponded with that of Eastwood and Jefferson who state that neurosis increases with the increase in efficiency of immobilization.[3] In cases of protracted muscular spasm, warmth was directed to the neck several times a day. We felt that intense heat increased muscular spasm and exaggerated rather than relieved the patient's discomfort. Warmth was applied by means of an ordinary floor or table lamp with a 100 watt bulb or an infra red bulb. The lamp was placed at least 2 ft. (60.96 cm.) away from the neck so that the patient experienced only a warm breeze on the back of the neck. Standing in a warm shower, the use of an electric heating pad adjusted to the lowest temperature, or application of warm moist towels to the neck were other measures available in the home.

In the severer instances of muscular spasm and radiculitis, it was useful to instigate cervical traction. A Sayre-type of head halter was purchased from a local hospital supply company. Patients were usually very resourceful in rigging the traction apparatus with sash cord or chain, pulleys, and a pail of sand for a weight. About a 7 lb. (3.2 kg.) weight provided satisfactory traction and was easily tolerated by the injured person. Cervical traction provided enforced rest and reduced muscular spasm. Since most of these patients experienced marked nervous symptoms, it was found that an intermittent program of traction best served the interest of the injury and the person. Two hours in traction and two hours out were advised during the acute phase of the illness, and one hour of traction several times a day was found useful later in the convalescent period. Anticonvulsants, such as diphenylhydantoin (Dilantin) sodium and phenobarbital, were prescribed for patients who had a moderate cerebral concussion.

Symptoms of tension were sometimes combatted by the use of warm baths.[4] The patient was advised to stretch out in a warm bath in which the water had been regulated to exactly 98 F according to a bath thermometer. Hydrotherapy was prescribed at least twice a day for a minimum of 20 minutes each time. Such treatment before bedtime promoted sleep and reduced the neuromuscular tension. Another important factor in management of the nervous patient consisted of control of daily activities. It was important to insist on regular rest periods each day and to limit activities to essential tasks. These patients were encouraged to participate in some manual activities that distracted them from preoccupation with the injury, reduced the neuromuscular tension, and improved morale. When a year or more had elapsed after an injury, it was our impression that the legal aspects of the injury were sometimes contributing factors in the psychoneurotic reaction. In those instances, it was advised that legal settlement be consummated.

In general, those persons who had signs and symptoms of a protruded intervertebral disk or roentgenographic evidence of a subluxation, dislocation, or fracture of the cervical spine required more extensive treatment in the form of hospitalization, cervical traction, and neck support. When these complications occurred, the services of a neurosurgeon were promptly requested.

---

[3] Eastwood, W. J., and Jefferson, G.: Discussion on Fractures and Dislocation of the Cervical Vertebrae, Proc. Roy. Soc. Med. 33: 651-660 (Aug.) 1940.

[4] Gay, J. R.: Home Hydrotherapy for Minor Reactions Due to Tension, Proc. Staff Meet., Mayo Clin. 23: 193-194 (April 14) 1948.

CAUSE AND PREVENTION

The details of each accident were unusually complete in our records because 33 patients (66%) had threatened, started, or completed legal action in connection with the accident. A rear collision between two vehicles was responsible for the injury of 45 persons (90%). In 43 of these, only one car was moving, while, in the other 2, both were moving. Almost all of these accidents (39 out of 45) occurred near an intersection when the car ahead stopped to observe a traffic signal. Four other collisions were head on or from the side. The driver of the offending car was alleged to have been drunk in only two instances. All types of collisions numbered 49 and in only 6 of these cases was a truck or bus at fault. The other accident in this series involved only one automobile.

We were impressed in our experience with these patients by the importance of preventing accidents that commonly cause whiplash injury of the neck. The symptoms from this condition were so tenacious and the rate of recovery so slow that it was felt that every effort should be made by public authorities to prevent this kind of suffering. Drivers in many states are instructed to "drive ahead"; this means that they should observe what is happening some distance in front of their car so that they can anticipate changes in traffic conditions. To this advice should now be added the instruction to "drive behind"; this means that a motorist should keep the driver behind informed of stops and turns by the use of proper hand signals and that he should watch the driver behind him in the rearview mirror to be certain that these signals are observed. Some of the suggestions that may be useful to motorists are listed here. 1. Keep brakes in good condition. 2. Stay a safe stopping distance behind the car ahead. 3. Be alert for sudden changes in traffic conditions, especially a quick stop by the car ahead. 4. Allow a car that follows too close to pass. 5. Make use of proper hand signals to indicate stops and turns. 6. When stopping, observe driver behind in rearview mirror to be sure your signal is seen. If it is impossible to prevent a collision from behind, the best protection can probably be obtained by covering and supporting the head and neck with the arms or by falling in this same protected posture across the seat of the car.

REPORT OF CASES

Case 1.—While riding in the right front seat of a passenger car during July, 1951, the car in which this 47-year-old housewife was riding was struck from behind by a faster moving vehicle. The impact snapped her head and neck forward and backward several times. She was not unconscious but had severe pain in the neck and suspected that her neck was broken. Immediately after the accident, there was spasm of the cervical spinal muscles, limitation of motion, and tenderness of the lower posterior cervical region. Roentgenographic examination of the cervical spine was normal, and the neurological examination revealed no additional abnormalities. A program of rest was advised that included sedation and cervical collar support. In the weeks that followed, the woman experienced moderate nervous symptoms consisting of tension, restlessness, head sensations, moodiness, and general nervousness. Nineteen months after the accident, it was estimated that she had obtained only 80% recovery.

Case 2.—About August, 1950, this 44-year-old store manager stopped at a traffic light when her car was struck from behind by a semitrailer truck. She remembered the forceful snapping of her head forward and backward; she was bewildered but suffered no other injury. At the scene of the accident, she noticed aching of the neck and lower back. These symptoms persisted, and a few days later excessive fatigue, insomnia, generalized headache, subjective vertigo, and paresthesias in the right arm developed. She was first examined by one of us almost a year after the accident. At that time, there was hyperirritability of the neuromuscular system and tenderness and limited motion of the neck. Roentgenograms of the cervical spine, which were taken soon after the accident, were reviewed and found to be normal. It was concluded that she was suffering from a chronic sprain of the neck, with a mild concussion syndrome. There was definite evidence in the history that the woman had also had occasional cervical radiculitis involving the right arm. In the fall of 1950, definite nerve root pain developed in the left arm, and the neck symptoms became intensified. Later examinations revealed more marked limitation of the motion of the neck, tenderness of the spinous processes of the lower cervical vertebrae, hyporeflexia of the brachioradialis and biceps reflexes on the left side, weakness of grip of the left hand, and an area of hypesthesia over the dorsum of the left forefinger. A protruded intervertebral disk in the cervical region was suspected. Myelography performed in November, 1951, indicated a protruded disk at both the fifth and sixth interspaces on the left side. A conservative program was followed that consisted of cervical traction, application of warmth to the neck, use of a bedboard, administration of analgesics, limitation of activities, and wearing a comfortable neck collar support (all accompanied by an abundance of reassurance). Signs of nerve root compression disappeared in a few months. Thirty months later, it was estimated that there was about 75% recovery. The lack of complete recovery was largely because of a mild psychoneurotic reaction.

Case 3.—A 28-year-old housewife stopped at an intersection to observe a traffic light; her car was struck from behind by another passenger vehicle. She was momentarily unconscious. Profound pain was experienced in the neck, and the woman was forced to hold her neck rigidly in order to prevent aggravation of discomfort. Some pain radiated into the region of the right lower jaw and across the upper anterior chest wall on the right side. Roentgenograms of the cervical spine were normal. In the days that followed, insomnia, headache in the right frontotemporal region, syncope attacks, subjective vertigo, irritability, tension, and general nervousness developed in addition to pain, tenderness, and limitation of motion of the neck. When she was examined in June, 1951, two months after the accident, the neurological system was normal. She had evidence of a subsiding sprain of the neck and was considered to have a concussion syndrome. An electroencephalogram performed on June 7, 1951, was normal. The woman was treated with sedation, rest, and a comfortable cervical collar support and required an unusual amount of reassurance. In the interval of 22 months after the accident, she recovered approximately 75%. In our opinion, complete recovery was delayed by the development of a mild, chronic anxiety tension disorder.

Case 4.—About September, 1951, a 45-year-old interior decorator was a passenger in a taxi cab when the taxi was involved in a collision. The woman's knees were thrust against the back of the front seat, and both her neck and lower back were thrust forward in acute flexion. She was not unconscious but was shaken up. About an hour later, a sensation of tension developed in the back of her neck, and, for several days, she was irritable, restless, tense, and nervous. She noticed that bending her neck caused discomfort. An examination conducted about a month after the accident showed a generalized hyperreflexia and moderate limitation of motion of the neck. It was concluded that the woman had a sprain of the neck and mild cerebral concussion. One month later, she experienced some pain and paresthesias in the right arm. An examination showed hyporeflexia of the brachioradialis and biceps reflexes on the right side. Low back and right leg pain developed and was accompanied by muscular spasm in the lower lumbar region. These findings were interpreted as moderate cervical and lumbosacral radiculitis. There was insufficient evidence on clinical grounds to report a protruded disk in those regions. During the period of observation, the patient was treated with warmth supplied to the neck and low back, cervical traction at home, comfortable neck collar support, sedation, and sleep on a firm bed. Thirteen months after the accident, she had recovered completely.

Case 5.—A 33-year-old engineer was seated between the driver and another passenger when the car in which he was riding was involved in a head-on collision with another vehicle. Anticipating the crash, he braced himself and turned to the right to protect his daughter from possible injury. He was not unconscious but, immediately after the accident, noticed pain in the back of the neck that radiated into the left shoulder and arm as far as the thumb and forefinger. A few hours later, he experienced pain in the lower back; this radiated into the left hip and lower leg. All these symptoms persisted, and the man became disabled because of the low back and left leg pain. Lumbar traction and other conservative measures under hospital conditions failed to lessen his disability. The clinical findings and myelography indicated a protruded intervertebral disk at the fifth lumbar interspace on the left side. A cervical protruded disk was also suspected on the left side between the fifth and sixth cervical vertebrae. Laminectomy was performed, and a protruded intervertebral disk at the fifth lumbar interspace on the left side was found and removed. During the period of convalescence after the laminectomy, cervical traction was instituted for persistent low cervical and left upper extremity pain. On discharge from the hospital, most of the therapy was directed toward symptomatic relief of cervical radiculitis. Three months after the injury, the patient had recovered completely and was able to return to work. There have been only minor recurrences of the cervical radiculitis since that time.

RESULTS

Only 12 patients were examined by us within a few hours or days after their accident. The other 38 were first seen from one to 24 months after they were injured. In general, those persons who were managed a few hours or days after their injury improved more rapidly and their recovery was more complete. In our opinion, this difference in result was largely due to the personal attention that was provided, including discussion of the condition, reassurance, and a detailed program for relief of symptoms. The object of such attention was largely designed to prevent the development of a severe or intractable psychoneurotic reaction that would handicap full recovery.

There were 37 patients (74%) who were seen after their first examination. These patients were reexamined from 1 to 21 times. A detailed questionnaire sent out in February, 1953, was answered by 23 persons. The lapse of time between the accident and our last contact with the patient ranged from one month to five years. All 37 patients who were seen more than once were improved (30 cases, or 81%) or well (7 cases, or 19%). A study of the 30 persons who improved indicated that recovery was delayed by a psychoneurosis alone in 16, by a somatic condition alone in 3, and by a combined somatic condition and psychoneurosis in 11. In those who improved, 22 out of 30 were considered to have progressed to at least 75% of full recovery. These statistics supported the clinical impression that a whiplash injury is a chronic condition in which recovery is slow and the complication of a psychoneurotic reaction is common.

COMMENT

From the clinical standpoint, there are multiple organic pathological factors involved in radiculitis that follows a whiplash injury. It is reasonable to assume that there is trauma of the spinal ligaments because of the characteristic symptoms of a sprain of the neck, and, in some severe ligamentous injuries, an actual subluxation can be demonstrated by roentgenographic examination. It is likely that there is some hemorrhage and edema in the region of the damaged ligaments that may be a source of nerve irritation. Later on, fibrosis and cicatricial changes may be a chronic source of irritation of the nerve roots. At the instant of the whiplash, direct trauma of the nerve roots from stretching, compression, or even trauma of the spinothalamic pathways in the lateral columns of the spinal cord might conceivably occur.

In the acute case, swelling and vascular congestion of the nerve root and narrowing of the foramen due to protrusion of the intervertebral disk or swelling of adjacent ligaments may be important factors producing symptoms. In chronic cases, fibrosis, which is the late counterpart of hemorrhage and edema, may involve the nerve root directly, produce adhesions between the spinal ligaments and the nerve root, or cause a relative narrowing of the vertebral foramens. An additional factor may be the abnormal mobility of the vertebral joints because of damage of the ligaments.

Vertigo, which is described as part of the postconcussion syndrome and which may be due to vasomotor instability, might instead be due to a disturbance of the vestibulospinal system through either direct nerve root irritation or chronic abnormal hypertonicity of the cervical spinal muscles (tonic neck reflex system).

The presence of the vertebral artery as an integral structure of the upper cervical spine, with its investment of sympathetic nerve fibers, raises the question of the participation of the sympathetic nervous system (afferent or efferent) in the production of symptoms after a whiplash injury.

Headache has been mentioned as a symptom that follows a concussion. This may also be secondary to the pathological changes in the neck, either a referred pain from nerve or muscle sources or a reflex vascular phenomenon elaborated through the sympathetic nervous system.

These clinicopathological conditions are very difficult to prove, but a study of patients who suffered from persistent pain many months after their accident suggests that the original injury and late secondary organic changes are, in fact, severer and more complicated than have generally been supposed among laity, legal authorities, and physicians.

Beside the organic pathology of the whiplash injury, there is always the ever-present personal reaction of the patient that particularly complicates evaluation of symptoms, treatment, and recovery. It seems to us that, in addition to the factors already discussed, injury of the head and neck is of particular significance to the patient. These patients as a group are much more apprehensive, tense, and anxious than those suffering injury elsewhere in the body. We suspect that injury of the head and neck represents a special insult to the personality structure of the injured person.

The fact that more women than men, more housewives than any other occupational group, and more persons between the ages of 30 and 50 were injured gives rise to many speculations regarding the causes of whiplash injuries. Most of the speculations having to do with factors such as alertness, sex, age, skill in driving, and degree of exposure to traffic hazards cannot be proved. It is reasonable to state, however, that the collision from behind, which causes most whiplash injuries, is definitely the product of high speed motor transportation, increasing traffic congestion, and mounting traffic restrictions in the form of signs, lights, signals, and regulations.

SUMMARY

Fifty patients who suffered a whiplash injury of the neck were studied. These patients received a sprain of the neck that was often complicated by associated conditions. Characteristically, these patients were more disabled and remained handicapped for longer periods than was anticipated, considering the mild character of the accident. A majority of patients were injured in collisions from behind occurring when the first vehicle stopped to observe a traffic light. The findings in these 50 cases are reported, and a program of treatment is outlined. Some suggestions are made for motorists in the interest of preventing whiplash injuries.

3 Old Mamaroneck Road (Dr. Gay).

ANALYSIS OF ONE THOUSAND CONSECUTIVE RESIDENCE VISITS TO ACUTELY ILL MEDICAL PATIENTS

William T. Couter, M.D., Alvin T. Held, M.D.
and
Charles L. York, M.D., Decatur, Ill.

Although residence visits may occupy a large share of a physician's working day, statistical knowledge concerning these visits is largely a matter of conjecture and hearsay. This study was inspired by a great variation in opinion among the older practitioners in our community regarding their impression of residence visits. We felt that by analyzing 1,000 consecutive residence visits some useful, and to a large extent unknown, statistical information could be obtained.

In order to make such a study, its basic unit—the residence visit—had first to be defined and then that definition rigidly followed. All patients 13 and under were automatically excluded. As far as was possible over the phone, complaints belonging to specialties other than internal medicine were referred to other practitioners, and only the remainder were then seen. Only the initial visit to any patient with a medical complaint or to the same patient for a medical complaint unrelated to a chronic condition was counted; the entire series was also screened to prevent any duplication in patients. The day of the call cards were completed by each of us, and these cards then formed the basis of the study. These cards contained spaces for the name, age, and sex of the patient, as well as the time and date of the call, drugs used, diagnosis, and an evaluation of the need of the call. At regular intervals the cards were checked to determine any changes in the initial diagnosis, which might have been clarified by time. For instance, an initial impression of gastroenteritis in one patient became a proved lymphosarcoma of the stomach later, and the card was changed to the final and correct diagnosis. One hundred and seventy-nine patients were hospitalized (an additional 48 patients needed but refused hospitalization) and received laboratory work as needed for diagnosis. The remainder of the patients with nonevanescent conditions were seen either on subsequent visits or in the office, with outpatient laboratory work as deemed necessary. This study was started in November, 1950, and completed in March, 1953. It represents 29 months of residence visits for two of us (W. T. C. and C. L. Y.) and 15 months for one of us (A. T. H.), or an aggregate of 73 months of residence visits. This period of time becomes important, in that for half of the patients there is a follow-up period of at least 15 months and for three-fourths a similar period of at least 8 months.

One of the most interesting facts to emerge from this study was the preponderance of female patients requiring residence visits. The over-all percentage of female patients was 65.5% as compared to 34.5% for male patients. All three individual series were in close agreement: 68.9% female (A. T. H.), 66.6% female (C. L.Y.), and 63.3% female (W. T. C.).

To some extent the time that the residence visit was made was weighted by the fact that we try to make such visits in the morning while en route to or from the hospital and in the evening after office hours. For the purpose of the study all seven days were assumed to be equivalent. There were 325 visits from 7 to 12 a. m., 311 from noon to 6 p. m., 206 from 6 to 8 p. m., 111 from 8 p. m. to midnight, and 47 after midnight.

In our discussion prior to embarking on this study, there was a universal cynicism about the urgency of the visit after midnight. Yet in these 47 screened calls, 15, or 31.9%, required a physician within 4 hours; one additional patient should have been seen within 12 hours. Twenty-seven patients were symptomatic but not urgently so and from the physical symptoms only could have been seen the following morning; however, the emotional impact of disease occurring after midnight in particular cannot easily be resolved over a telephone. We felt that the remaining four patients needed neither physical therapy nor emotional reassurance at that hour. There were 27 visits to female patients and 20 to male

---

Presented at the Southern Illinois Regional Meeting of the American College of Physicians, Bloomington, Ill., March 21, 1953.

patients, a female preponderance of 57.3%, which is not too far removed from the over-all female majority. There were 26 diseases among the 47 visits: appendicitis (1), anxiety state (2), bronchial asthma (1), acute back (1), bronchiectasis (1), bronchitis (1), bronchogenic carcinoma (1), Laennec's cirrhosis (1), cerebrovascular accident (2), cholecystitis (2), collapsed vertebral body (1), congestive heart failure (7), coronary occlusion (3), dysmenorrhea (1), acute failure of the left side of the heart (dead on arrival) (1), hypertensive epistaxis (1), gastroenteritis (4), hyperventilation (1), fractured ribs (1), "influenza" (3), migraine (1), pneumonia (4), pleurisy (1), renal colic (1), tonsillitis (3), and urinary tract infection (1).

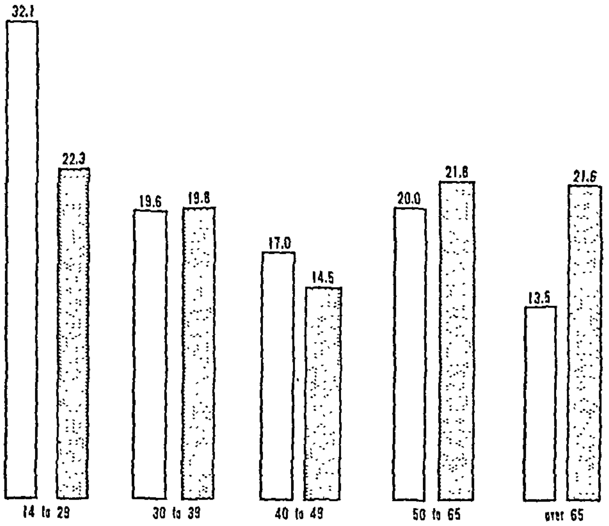
The patients were classified into five age groups—namely from 14 through 29, 30 through 39, 40 through 49, 50 through 65, and finally over 65 (see figure). The statistical incidence of each age group was then compared against its population density, as computed from the 1950 census of Macon County. The imbalance, stressing the high incidence of visits to those over 65, serves to emphasize the importance of geriatric medicine.

Our primary purpose in analyzing these residence visits was to determine, if at all possible, the actual need for such a visit. Early in the study we concluded that we were not competent to answer this question; we could not be objective enough in our evaluation, and we were not able to assess the value of reassurance for a seemingly trivial complaint. We assumed that a physician's presence was necessary for the patient, which nullified our original question of "Is this call necessary?" We substituted the question "Could this patient have been seen in the office?", and this question we could answer with a greater degree of objectivity and accuracy. We were then able to place our patients into four groups. In the first were those patients whose complaints were of such a nature that a residence visit within four hours of receiving the call was necessary, and in this group were 8.2% of the total calls. In the second group were those patients whose complaints could tolerate a 12 hour time lag, and in this group were 4.3% of the total visits. The largest group, 62.6%, was composed of those patients who had symptoms but whose complaints were not urgent and who for various reasons were unable to visit the office; in this group was included, for instance, a mildly ill mother taking care of three children and without a baby sitter. The fourth group was a controversial group and was composed of those patients we felt could easily have been seen in the office, and this group comprised 24.9% of the total. The individual series for this last group reflect the difficulty in evaluating a patient's need: two of us were in close agreement (A. T. H. 17.8% and C. L. Y. 18.4%), as compared to the 28.9% of our third member (W. T. C.).

We were interested in trying to determine whether there was any shift in the sexual predominance in any of these four groups. The over-all percentage was that of 65.5% female and 34.5% male. In the group of 249 patients that we felt were able to visit the office, there were 66.6% women and 33.4% men. In the large group of patients with nonurgent symptoms requiring a residence visit 68.8% were women and 31.2% were men. In the 43 patients requiring a visit within 12 hours 68.2% were women and 31.8% were men. It was only in the group that needed a visit within four hours that a shift in the general pattern was present, for in this group of 82 patients only 46.3% were women, as compared to 53.7% men.

There were 135 different clinical entities encountered during the 1,000 residence visits. Fourteen of these entities covered 66.4% of the total calls, leaving 121 others distributed throughout the remaining 336 visits. The commonest entities in the order of their occurrence were: "influenza" 148, follicular tonsillitis 84, nasopharyngitis 79, pneumonia 70, gastroenteritis 67, anxiety state 51, cardiac failure 36, bronchitis 25, acute back pain 23, urinary tract infection 23, coronary artery disease 22, cholecystitis 20, cerebrovascular accident 15, and bronchial asthma 15 (see table).

The diagnosis "influenza" was used to classify a clinically repetitive pattern of illness occurring in our community in 1952-1953. This group was differentiated from the nasopharyngitis group by the severity of the acute symptoms and more importantly by the prolonged postinfectious asthenia. In the 1,000 acutely ill patients primary cardiac disease was discovered only 70 times, or in 7%; however, 27 of these patients were hospitalized (another 10 needed but refused hospitalization); this group formed 16.3% of the total hospitalized group. In the neuropsychiatric group there were 67 women and 36 men: the female percentage of 65.0% is in close agreement with the over-all female percentage of 65.5%. The ruptured ectopic pregnancy deserves special mention, as several days previously the patient had passed a complete fetus and the possibility of a combined uterine and tubal pregnancy was initially almost ignored.



Comparison by percentage of age groups requiring residence visits as against the population density, according to the 1950 census. Shaded bar denotes total residence visits.

On four occasions the patient died prior to our arrival. On each of these occasions the telephone summons was so urgent that the call was answered within 15 minutes. One patient died of bronchial asthma and the other three of acute failure of the left side of the heart.

A disconcerting paucity of neoplastic disease was encountered in the series. The comparatively long period of time occupied by this study becomes important now in evaluating our low incidence. We discovered four primary neoplasms: a squamous cell carcinoma of the throat, a lymphosarcoma of the stomach, and two bronchogenic carcinomas. It is entirely possible that some of the conditions encountered in the last six months may represent neoplastic disease in an occult form, but, judging from the follow-up studies on the remaining patients, any such changes will not add a significant number to the total.

Classification of the Diseases Encountered in 1,000 Consecutive Residence Visits

Site or Type of Disease	Number of Visits	Clinical Entities
Cardiorespiratory system	198	Pneumonia 70, cardiac failure 36 (rheumatic 3, hypertensive 7, arteriosclerotic 25, and cor pulmonale 1), bronchitis 25, coronary artery *disease 22 (coronary occlusion 12 and coronary insufficiency 10)*, bronchial asthma 15, pleuritis 7, paroxysmal auricular tachycardia 6, varicose ulcer 3, thrombophlebitis 3, uremia 2, paroxysmal auricular fibrillation 2, bronchogenic carcinoma 2, pericarditis 1, dissecting aneurysm 1, auricular flutter 1, bronchiectasis 1, and acute rheumatic fever 1.
Ear, nose, and throat system	191	Follicular tonsillitis 84, nasopharyngitis 79, labyrinthitis 10, sinusitis 9, otitis externa 2, otitis media 2, hypertensive epistaxis 2, conjunctivitis 1, *carcinoma of the throat 1*, and laryngitis 1.
Specific infectious diseases	158	"Influenza" 148, infectious mononucleosis 2, mumps 2, chickenpox 2, herpangina 2, rubella 1, and meningococcic meningitis 1.
Gastrointestinal tract	141	Gastroenteritis 67, cholecystitis 20, appendicitis 12, irritable bowel syndrome 9, bleeding duodenal ulcer 5, diverticulitis 4, small bowel obstruction 4, hemorrhoids 3, rectal impaction 3, perforating duodenal ulcer 3, large bowel obstruction 2, anal fissure 2, obstructed duodenal ulcer 2, esophageal stricture 1, lymphosarcoma of the stomach 1, bleeding gastric ulcer 1, Laennec's cirrhosis 1, and hepatitis 1.
Neuropsychiatric	103	Anxiety state 51, alcoholism 14, hyperventilation syndrome 13, senile dementia 7, chronic fatigue syndrome 5, conversion hysteria 5, barbiturate intoxication 4, reactive depression 3, and menopausal psychosis 1.
	52	Cerebrovascular accidents 15, hypertensive encephalopathy 12, migraine 10, epilepsy 4, collapsed vertebral body 4, peripheral neuritis 4, transverse myelitis 1, concussion 1, and electric shock 1.
Musculoskeletal system	51	Acute back pain 23, myositis 7, sprains 7, fractures 5, dislocations 3, bursitis 3, rheumatoid arthritis 2, and osteoarthritis 1.
Skin	36	Contusions 8, urticaria 6 (of which 3 were penicillin urticaria), herpes zoster 4, paronychia 4, dermatitis medicamentosa 4, cellulitis 3, lacerations 2, dermatitis venenata 1, sunburn 1, infected eczematoid dermatitis 1, erythema multiforme bullosum 1, and furuncle 1.
Genitourinary organs	32	Urinary tract infection 23, renal colic 6, prostatism 2, and postoperative urethral stricture 1
	22	Pelvic inflammatory disease 6, dysmenorrhea 4, fibroids 2, pregnancy 2, intermenstrual pain 2, attempted abortion 1, ruptured ectopic pregnancy 1, menopausal bleeding 1, senile vaginitis 1, relaxed pelvic floor 1, and *endometriosis 1*.
Endocrine organs	7	Insulin reaction 3, acute gout 2, prediabetic coma 1, and heat exhaustion 1.
Miscellaneous	9	Periapical abscess 3, postviral asthenia 2, pernicious anemia 2, and angioneurotic edema 2.

Decatur, a city of about 70,000 population, has a strong tradition of residence visits, and a well-used bag is a part of both the general practitioner's and specialist's basic armamentarium. Most of the drugstores close in the early evening, and all are closed by 11 p. m. The working pharmacopeia then has to cover the nonhospitalized patient until a complete therapeutic battery is available the following morning. We have found that the following 16 drugs were used the most frequently: aspirin compounds (364), penicillin with or without streptomycin (we carry both) (291), soporifics (216), barbiturates (188), meperidine (Demerol) hydrochloride (92), Triple Sulfas suspension (combination of sulfadiazine, sulfamerazine, sulfamethazine, and alcohol) (44), cough syrup (39), morphine (36), aminophylline intravenously (32), meralluride (Mercuhydrin) sodium (24), sodium salicylate orally and parenterally (19), dihydroergotamine methanesulfonate (D. H. E. 45) (14), dimenhydrinate (Dramamine) parenterally (12), Kaopectate (adsorbent for intestinal dysfunction) (11), diphenhydramine (Benadryl) hydrochloride parenterally (10), and codeine orally (10). The amount of soporifics utilized is weighted by the fact that one of us (W. T. C.) dispenses a small amount of secobarbital (Seconal) on many of his visits. All three of us consistently used more meperidine hydrochloride than morphine. The dihydroergotamine methanesulfonate and diphenhydramine hydrochloride were consistently employed together in migraine; the dimenhydrinate was used in the same syringe with meperidine hydrochloride for gastroenteritis.

There were 14 drugs that were used sparingly but whose presence in the bag was vitally necessary. These were digitoxin orally and parenterally (8), camphorated opium tincture (7), amobarbital (Amytal) sodium parenterally (4), epinephrine (Adrenalin) in oil (4), atropine parenterally (4), quinidine orally (3), glucose intravenously (2), methantheline bromide (Banthine) parenterally (2), pentylenetetrazol (Metrazol) (1), nitroglycerin (glyceryl trinitrate) (1), procaine amide (Pronestyl) hydrochloride intravenously (1), neostigmine (Prostigmin) parenterally (1), calcium gluconate parenterally (1), and methantheline bromide orally (1).

All of us have had experience with drugs that have been carried uselessly in the bag for years prior to final discard. We carried camphor in oil, aqueous epinephrine, coramine (25% solution of nikethamide) caffeine and sodium benzoate, and methylisooctenylamine (Octin) for a total of 73 months without finding a suitable indication for their use in these acutely ill patients.

SUMMARY

One thousand consecutive residence visits to acutely ill medical patients are analyzed as to the sex and age of the patient, the time and necessity of the call, the diagnoses established, and the drugs utilized.

250 N. Water St. (Dr. Couter).

Achalasia.—In an examination of the gullets of thirteen patients who died suffering from achalasia, Lendrum found that the only deviation from normal was that the ganglion cells of Auerbach's plexus were always deficient or absent. Due allowance was made for the fact that the cells are more scarce in a distended gut. Lendrum stated that the deficiency affected the dilated part of the gullet as well as the narrow segment. These findings have been confirmed by many competent pathologists; and it may be that, in the light of the work upon Hirschsprung's disease, the deficiency of ganglion cells in the narrow segment may be the key to understanding achalasia. Achalasia and Hirschsprung's disease could be comparable diseases.—N. R. Barrett, M.D., Achalasia: Thoughts Concerning the Aetiology, *Annals of the Royal College of Surgeons of England,* June, 1953.

USE OF OCTAMETHYL PYROPHOSPHORAMIDE IN THE TREATMENT OF MYASTHENIA GRAVIS

FURTHER OBSERVATIONS

Sidney Schulman, M.D., J. Alfred Rider, M.D., Ph.D.,
and
Richard B. Richter, M.D., Chicago

Octamethyl pyrophosphoramide (OMPA) is the most recent organic phosphorus anticholinesterase agent used in the treatment of myasthenia gravis. The pharmacology of this drug has been extensively studied by DuBois, Doull, and Coon.[1] It is not itself an active antisterase agent, but it is converted to an active substance by the liver. Like the other organic phosphorus compounds, such as di-isopropyl fluorophosphate and tetraethyl pyrophosphate, and in contrast to neostigmine, the active metabolite of octamethyl pyrophosphoramide inhibits cholinesterase irreversibly. It is for this reason that all of these compounds have the advantage over neostigmine of a longer duration of action. The advantages of OMPA over the others lie in its greater chemical stability and less severe toxic side-effects. Muscarinic symptoms from octamethyl pyrophosphoramide are more easily controlled with atropine than are those produced by di-isopropyl fluorophosphate and tetraethyl pyrophosphate, and, furthermore, OMPA, because of its exclusively peripheral action, does not cause the central stimulant effects that the others do.

Octamethyl pyrophosphoramide is taken orally in a 1% solution in propylene glycol. Two daily doses given at 12 hour intervals have been sufficient to maintain strength evenly in most of our patients, but a few persons have required a small midday dose in addition. The transfer from neostigmine to OMPA is accomplished while the patient is in the hospital. First, a small dose, 5 to 7 mg. twice a day, is given and it is gradually increased. At the same time, neostigmine is given as necessary only until it is no longer required at all. Generally, it is possible to replace neostigmine in this way in one or two weeks. Although in most of our patients serum and red blood cell cholinesterase determinations were made daily during the period of transition this is not necessary, and, in fact, once a maintenance dose of the substitute drug has been established, such determinations are of little value, because the blood esterase levels no longer closely reflect the theoretical esterase depression at the myoneural junction. It is known, however, that the full therapeutic effect of octamethyl pyrophosphoramide is not achieved unless the red blood cell esterase activity is well below 10% of normal.

EARLIER RESULTS

We reported the results of the treatment of the first six patients who received OMPA in 1951.[2] Since then two more reports have appeared in the literature by others who have used the drug, and both groups have said that it is the most satisfactory agent now available for the management of myasthenia gravis.[3] Our own experience at the time of our initial report led us to conclusions that were not this sanguine, and, with further experience, we are even more certain that octamethyl pyrophosphoramide cannot be endorsed as a substitute for neostigmine without strong reservation.

Our total experience with this drug includes its use in 15 patients. Of this number, seven are now dead and two were unable to make the change from neostigmine to OMPA. The mortality in this series, therefore, approaches 50%, and, if the two patients who could not tolerate the drug are excluded from the total, it is slightly more than 50%. This is certainly a higher mortality than would be expected in a similar group of myasthenic patients treated with neostigmine, even considering that the selection in this series was in favor of severe cases. Our results then, when they are stated in this way, not only would appear to indicate that OMPA is no more effective than neostigmine in cases of severe myasthenia but also raise the questions of whether the drug itself might cause death, and, if so, whether its use should be continued at all in the treatment of myasthenia gravis. It is with the purpose of providing an answer to these questions that the following analysis is presented.

Of the seven patients who died, we think there is good reason to believe that four died in myasthenic crisis and three from direct intoxication by the drug. In reviewing the fatal cases in the order of decreasing probability that the drug was responsible for death, it is possible to begin with one patient whose death was unquestionably caused by the drug.

DEATHS CAUSED BY OMPA

This patient was a 37-year-old woman with severe myasthenia gravis and a thymoma. She apparently had had an undiagnosed, rapidly progressing myasthenia for a year by the time she was first seen at Billings Hospital, in October, 1950. At that time she was in rather critical condition because of advanced bulbar and respiratory weakness. She was treated with neostigmine, 300 mg. daily, for six months with results that were at first fairly satisfactory but that soon became more and more disappointing. In May, 1951, therefore, neostigmine was replaced by OMPA in a maintenance dose of 16 mg. in the morning and 15 mg. at night. The patient's strength on receiving OMPA was about the same as it had been when the effect of neostigmine was at its height, but there was no question that she was benefiting more from the substituted drug because of its sustained action. She was no longer awakened

---

From the Division of Neurology, University of Chicago School of Medicine.

The octamethyl pyrophosphoramide used in this study was supplied by Dr. C. G. Weigand of the Eli Lilly Company.

[1] DuBois, K.; Doull, J., and Coon, J. M.: Studies on the Toxicity and Pharmacological Action of Octamethyl Pyrophosphoramide (OMPA: Pestox), J. Pharmacol. & Exper. Therap. **99**: 376 (July) 1950.

[2] Rider, J. A., and others: Treatment of Myasthenia Gravis with Octamethyl Pyrophosphoramide; Preliminary Report, J. A. M. A. **145**: 967 (March 31) 1951.

[3] (*a*) Wilson, C. W.; Williams, J. P., and Miller, D. H.: The Hazard of Cholinergic Crisis during Treatment of Myasthenia Gravis with Octamethyl Pyrophosphoramide, Ann. Int. Med. **37**: 574 (Sept.) 1952. (*b*) Gregory, L., Jr.; Futch, E. D., and Stone, C. T.: Octamethyl Pyrophosphoramide in Therapy of Myasthenia Gravis, Am. J. Med. **13**: 423 (Oct.) 1952.

during the night by dyspnea, as had frequently happened when she was taking neostigmine. She took 0.6 mg. of atropine four times a day to overcome mild muscarinic side-effects (cramps, diarrhea, and excessive perspiration). Except for the perspiration, this dose of atropine controlled the symptoms completely. During the next four months, however, she complained of increasing general weakness and of difficulty in chewing and swallowing late in the day, and she began to lose weight. For this reason, the dose of OMPA was gradually increased so that by the middle of September, 1951, three months after administration of the drug was begun, she was taking the unusually large amount of 24 mg. in the morning and at night and 8 mg. at noon, a total of 56 mg. daily. Apart from the size of the dose, however, there was no indication that a dangerously toxic level was being approached. On the contrary, although her course in general during this period was one of deterioration, there had been a transient improvement in her strength after each increase in the dose, and her requirement for atropine remained the same.

The patient was admitted to the hospital again in October, 1951, in the hope that thymectomy might benefit her. During her first two weeks in the hospital while she was on a program of bed rest and high caloric feedings, she improved appreciably and gained 5 lb. (2.3 kg.). The dose of octamethyl pyrophosphoramide was not increased but was maintained at 56 mg. a day. At this time it was felt that the patient could withstand a thymectomy, and the procedure was scheduled for late in October. There was some concern about the relative inflexibility of a large maintenance dose of OMPA during surgery. For this reason it was decided to ascertain the effect of small parenteral doses of neostigmine in addition to the established dose of OMPA, so that, if occasion should arise during surgery or the postoperative period for an attempt at rapid further depression of esterase, we would know beforehand what, if anything, might be caused by parenteral administration of neostigmine. We were well aware of the probability that neostigmine would not improve the patient's strength and that it would much more likely result in a toxic parasympathetic reaction and, perhaps, even an increase in weakness. We did not believe, however, that a cautious trial of small doses compensated by atropine would be excessively dangerous. It was found that a dose of 0.25 mg. of neostigmine given subcutaneously had no effect of any kind. A few days later, at 5:30 p. m., the patient was given 0.5 mg. of neostigmine and 0.4 mg. of atropine subcutaneously in the same syringe. During the next half hour, there was a distinct improvement in her strength, and, at 6 p. m., when she began to take her evening meal, she said that chewing and swallowing were easier than usual. At 6:15, however, 45 minutes after the injection, she began to feel generally weak. By 6:30 she was apprehensive and dyspneic, and, within the next 10 minutes, she became completely paralyzed. Oxygen and manual artificial respiration were given, and, although there were no signs of parasympathetic stimulation, she was given 0.6 mg. of atropine intramuscularly. At 6:45, the patient was comatose, and, by 7 p. m., the heart beat had stopped. Shortly before death there had been slight siallorhea, but there was no other evidence of a cholinergic reaction, in the ordinary sense, during the interval of an hour and a half between the injection of neostigmine and the woman's death. There were no abdominal cramps or diarrhea and no bradycardia, lacrymation, diaphoresis, or miosis.

There is little question that this patient died as a direct result of 0.5 mg. of neostigmine administered parenterally in addition to a high maintenance dose of octamethyl pyrophosphoramide and that death was due to generalized paralysis despite the suppression of muscarinic symptoms by atropine. It might be argued, of course, that, since neostigmine was the precipitating cause of death, OMPA should not be held responsible. Nevertheless, a dosage that transforms an ordinarily innocuous amount of neostigmine into a lethal dose is much too near the upper limit of safety to be accepted as a feasible method of treatment.

There were two other deaths that were in all likelihood from antiesterase intoxication, although they did not occur under observation in the hospital. These two patients were included among the favorable cases in our first report.[2] One of them was a young, energetic man living in the backwoods of northern Wisconsin, far from immediate medical attention. As our patient, he had been under treatment with neostigmine for a number of years. With time, however, his requirement for neostigmine increased until he was greatly handicapped by severe general and bulbar weakness, even while receiving large doses. In view of the severity of his symptoms and his inaccessibility, we were reluctant to give him octamethyl pyrophosphoramide, but finally decided to do so because of his repeated threats of suicide, which we regarded as serious. For several months he did very well on 27.5 mg. a day. He was able to enter again the activities of his circle of friends and to drive a truck for a living. Then his requirement for the drug increased; improvement of his symptoms followed each time the dosage was increased. We increased the dosage cautiously, with due warning to him and his local physician to be on the alert for toxic symptoms. We had reason to believe, however, that with the heedlessness of youth he was regulating the dose more or less to suit himself. Then one day, unexpectedly, six months after this form of therapy had been started, he was found dying. He died a few minutes after the arrival of his physician.

The other patient who died at home was a middle-aged man who had had myasthenia gravis for three years.[2] He had been leading a life of moderately restricted activity while receiving large doses of neostigmine. Octamethyl pyrophosphoramide, 18 mg. twice daily, resulted in a gratifying improvement. After the maintenance dose was established, however, the patient never returned to the clinic for follow-up supervision but kept us informed by mail. He soon increased the dose to 25 mg. twice a day, and later, despite our objections, he began to experiment with the dosage and to supplement it with neostigmine in an irregular way. This patient also died suddenly at home about six months after treatment with OMPA was begun.

CAUSES OF DEATH

The cause and nature of death in these three patients is deserving of special emphasis. We are quite certain, in the case of the first patient and reasonably so in the other two, that death was a result of rapidly developing, generalized paralysis precipitated by excessive inhibition of cholinesterase. In this connection, it has been known for some time that the phenomenon of complete block in neuromuscular transmission is part of the nicotinic action of acetylcholine.[4] This occurs when acetylcholine is present in excess at the neuromuscular junction. There is now ample experimental evidence that such an excess of acetylcholine and its consequence, fatal paralysis, can be produced in animals by large doses of the organic phosphorus anticholinesterase compounds.[5] It is also known that atropine has no influence on the nicotinic action of acetylcholine and that it is, therefore, not an antidote to this phase of antiesterase toxicity. In fact, in most animal species, it is only after the suppression of the lethal muscarinic effects of acetylcholine by the use of atropine that the independently lethal nicotinic action becomes apparent. Theoretically, it would seem possible to overcome nicotinic neuromuscular block by the administration of a drug having a curare-like action. Curare itself has been reported to be ineffective in this respect in animals poisoned with di-isopropyl fluorophosphate,[5a] but magnesium sulfate does protect such animals to some extent if it is given before paralysis develops.[6] On the other hand, if magnesium sulfate is given after flaccid weakness appears, it is apt to precipitate death.[5a] Apparently the chemical equilibrium involved is so critically poised that attempts to influence it pharmacologically are far too crude to be successful, and they are obviously inapplicable in myasthenic patients in whom the problem is further complicated by a primary defect in neuromuscular transmission, the nature of which is still unknown.

---

[4] Rosenbleuth, A., and Morison, R. S.: Curarization, Fatigue and Wedensky Inhibition, Am. J. Physiol. 119: 236 (June) 1937.

The point we wish particularly to emphasize, in regard to myasthenic patients being treated with OMPA, is the insidious way in which this nicotinic toxicity can build up to the final, sudden, catastrophic collapse. We had expected, when we began treating patients with the drug, that toxic muscarinic symptoms would give ample warning of danger, but this has not been so. In general, once a maintenance dose of octamethyl pyrophosphoramide is established, our patients have shown no increased salivation, perspiration, or gastrointestinal symptoms with subsequent increases in the dose. This is probably accounted for by the facts that they were taking atropine as a regular part of their treatment and that much smaller doses of atropine are required to control muscarinic symptoms in patients receiving this agent than are necessary in those receiving di-isopropyl fluorophosphate or tetraethyl pyrophosphate. This offers no practical solution to the problem, however, for, although the atropine requirement is small, it has been necessary, for comfort's sake alone, for almost all of our patients to take some atropine if OMPA is given at all. With increasing weakness, then, as the only indicator of serious toxicity, one can say that it is always difficult and sometimes impossible to distinguish between an inadequate dose and one that is gravely toxic for a particular patient. It would appear that this margin may be a very narrow one indeed.

CAUSE OF DEATH DEBATABLE

Of the remaining four deaths, there was only one in which it might be argued that the drug was responsible, though in a less direct way than in the three patients already discussed. This case was recorded in our initial report as a myasthenic death. In view of possible alternative interpretation and because it illustrates another objectionable feature of OMPA, the pertinent details are repeated here.

A 30-year-old woman, with very severe myasthenia gravis that was poorly controlled with large doses of neostigmine, was brought to the hospital for treatment with octamethyl pyrophosphoramide more or less as a last resort. It was felt that she might benefit from the combination of a small maintenance dose of OMPA and a reduced amount of neostigmine. This compromise in management, which has been reported by others [3b] as useful in severe cases of myasthenia gravis, proved to be out of the question for this patient, because, after therapy was begun, severe nausea, cramps, and diarrhea followed each dose of neostigmine. These symptoms could not be controlled entirely with atropine, which was administered in amounts as large as she could tolerate, and they appeared when the dose of OMPA was quite small and when the blood esterase levels were only moderately reduced. For this reason and because of the patient's precarious existence on neostigmine alone, it was believed that an attempt to replace neostigmine completely with octamethyl phosphoramide would be justified. The dose was, therefore, slowly increased over a period of three weeks to 11 mg. twice a day. On this dose the red blood cell esterase activity was about 10% of normal, a level approaching but not actually within the full therapeutic range. Throughout the period of transition, neostigmine continued to produce severe muscarinic symptoms, but, although the requirement for neostigmine gradually diminished, small doses were always necessary to maintain sufficient strength for respiration and swallowing. Finally, after the second, 11 mg. dose of OMPA, neostigmine, for the first time, did not result in any increase in strength but seemed to make the patient distinctly weaker. Six hours after the second dose of OMPA was administered, complete respiratory paralysis developed. Tracheotomy was performed, and the patient was placed in a respirator. Administration of OMPA was discontinued, and neostigmine was withheld for 14 hours, after which it was found that small doses still had no beneficial effect. The woman died 48 hours after receiving the second 11 mg. dose of OMPA. A few hours before her death, the patient was given 3 mg. of neostigmine intravenously as a heroic measure. This had no apparent muscarinic or nicotinic effect.

In this instance, it would seem that either of two interpretations is possible. One is that this patient had severe myasthenia gravis that happened to become worse spontaneously and to cause the patient's death while an attempt was being made to establish a maintenance dose of OMPA. On the other hand, it is also possible to say that the drug contributed significantly to the woman's death in two ways: first, by interfering with the patient's nutrition and rest through the production of severe muscarinic symptoms in the long period during which both OMPA and neostigmine were being taken, and, second, by leading to the peculiar state existing in the last few days of life in which, apparently, the dose of OMPA was inadequate to sustain life and yet large enough to allow the further esterase depression produced by small doses of neostigmine to go beyond the optimum and to result in an increase in weakness rather than an increase in strength.

We believe that precisely this sort of disagreeable impasse was avoided in the two patients in whom it was impossible to substitute OMPA for neostigmine. In these patients, severe muscarinic symptoms developed without any increase in strength, during the process of substituting OMPA for neostigmine and at a time when the dose of OMPA was comparatively small and the blood esterase levels were only moderately reduced. Management of these patients on the combination of drugs was also impossible, but we chose to discontinue the use of OMPA entirely rather than to attempt to achieve the full therapeutic levels.

---

[5] (*a*) McNamara, B. P.; Koelle, G. B., and Gilman, A.: The Treatment of Di-Isopropyl Fluorophosphate (DFP) Poisoning in Rabbits, J. Pharmacol. & Exper. Therap. 88:27 (Sept.) 1946. (*b*) Modell, W., and Krop, S.: Antidotes to Poisoning by Di-Isopropyl Fluorophosphate in Cats, ibid. 88:34 (Sept.) 1946. (*c*) Footnote 1.

[6] Footnotes 5*a* and *b*.

Of the remaining three patients who died, all had severe myasthenia gravis. One died at home and two died in the hospital. One of these latter had taken the same dose of octamethyl pyrophosphoramide for two years before her death. In none of these three is it possible to say that the drug caused death except, in the two who died under observation in the hospital, there was the impression that, because of the lack of flexibility imposed by a full maintenance dose of the drug, nothing could be done to prevent death. Under such conditions, neostigmine is of no value and is even dangerous and it is impossible to make significant changes in the dose of OMPA quickly without danger of overdosage. In myasthenic crises in patients receiving neostigmine, on the other hand, one can at least give larger amounts of neostigmine without as much probability that death may result from the treatment.

COMMENT ON FURTHER USE

These seven fatal cases and the two living failures, then, obviously confirm the suspicions that octamethyl pyrophosphoramide is no better than neostigmine in the treatment of severe myasthenia gravis and that it can itself contribute directly to death, when given in the large doses that are required and tolerated with minimal muscarinic side-effects by some patients with severe myasthenia gravis. Whether, for these reasons, its use in myasthenia gravis should be discontinued entirely is another question, and it is one for which the answer should be based on evidence from our cases that responded favorably and from those in which OMPA was used successfully by others. At the present time, we have six patients who have been receiving the drug without neostigmine for periods of from seven months to two and one-half years. In all of these patients who had previously been taking neostigmine, we can say unreservedly that octamethyl pyrophosphoramide has been more satisfactory. While four of them have mild myasthenia gravis and two have only moderately severe cases, all have been much less disabled during therapy with OMPA than when they were taking neostigmine, and all are now leading active and useful lives. The average dose of OMPA among these patients is 20 mg. per day. The largest dose is 28 mg. daily, and all of them find it necessary to take 0.4 or 0.6 mg. of atropine three or four times a day to control muscarinic side-effects.

FAVORABLE RESULTS

Three patients, who have taken the drug for the longest periods of time, are briefly described as representative examples of this group. One of them, a 48-year-old woman who was accustomed to a very active social life and much traveling, was restive and discontent because her activities were so hampered while she was taking neostigmine. She has taken OMPA for two and one-half years and has been able to resume her former activities fully. The maintenance dose of the drug has never been greater than 18 mg. a day. In the summer of 1952, she managed her country house without servants and spent much time outdoors every day while taking a single dose of 4 mg. a day. At present she takes 9 mg. per day.

Another woman, 52 years old, whose disease has been somewhat more than mild, has been taking OMPA with satisfactory results for more than two years and has apparently stabilized the dosage at 28 mg. a day. During the period of her treatment, she underwent a total hysterectomy and, recently, took care of two active grandchildren.

The third patient, a 32-year-old man with comparatively mild myasthenia gravis, had been receiving neostigmine for five years. While the results were objectively satisfactory, he was greatly dissatisfied and made his own life and that of his family miserable by his bad humor. For that reason, he was treated with OMPA, which gave him maximum benefit in a dose of 28 mg. a day. He has been on this regime for more than two years, has been quite contented, and works regularly at his job with the city fire department.

In view of the excellent results in these patients, we find it very difficult to say, in spite of the hazards involved, that octamethyl pyrophosphoramide has no place in the treatment of myasthenia gravis and that its use should be abandoned.

SUMMARY AND CONCLUSIONS

This survey of the results of treatment of a group of 15 patients with myasthenia gravis with octamethyl pyrophosphoramide makes it quite clear that the very advantages of the drug, over the other organic phosphorus compounds and over neostigmine, can become serious disadvantages under certain circumstances. One of the advantages of OMPA over the other phosphorus compounds is that it produces muscarinic side-effects that are much more easily controlled by atropine. Thus, while it is true that nearly all our patients have had to take small amounts of atropine, subsequent increases in the dose of OMPA have not often required an increased amount of atropine. Since the action of an irreversible esterase inhibitor in myasthenic patients, beyond a certain critical point, leads to paralysis rather than to further increase in strength, the absence of muscarinic symptoms can be very deceptive, and situations may arise in which it is quite impossible to decide from the appearance of a patient alone whether an increase in weakness is a result of too much or too little of the drug. Furthermore, this toxic weakness can appear suddenly and progress rapidly to fatal, generalized paralysis.

Like the other organic phosphorus compounds, octamethyl pyrophosphoramide has the single advantage over neostigmine of a longer duration of action, and, as is also true with the others, the peak effect of a single dose is delayed for several hours. This combination of slow onset of action and prolonged effect, however, under conditions of myasthenic crisis, compares quite unfavorably with the flexibility provided by the rapid and reversible action of neostigmine administered parenterally.

We believe that OMPA does have a place in the treatment of myasthenia gravis, in spite of the hazards involved, but we cannot endorse its general use without strict qualifications. We think it should certainly be restricted to the treatment of the patient with mild or, at the most, comparatively mild symptoms and for whom neostigmine is not satisfactory. Also the patient should be intelligent and cooperative and should be watched carefully. It will sometimes happen that such a patient will do well on small amounts of the drug for a time, only to have his requirement increase later, just as with neostigmine. In these instances, repeated but temporary improvement may occur after each increment in the dosage. Under these conditions we now would abandon the use of OMPA and would revert to treatment with neostigmine alone, regardless of how unsatisfactory its effects might be. We believe, too, that some safe upper limit of dosage should be set and never exceeded under any circumstances. Our patients who died from intoxication were receiving prescribed doses of 40, 50, and 56 mg. a day, respectively, at the time of death. Among those who are doing well, one takes as little as 9 mg. a day; the largest dose is 28 mg. On the basis of our experience and that reported by others, we have arbitrarily set the dose of 30 mg. a day as the upper limit. We try, however, to administer the smallest possible dose that will result in reasonably good therapeutic effect.

950 E. 59th St. (37) (Dr. Schulman).

CLINICAL NOTES

HEMORRHAGIC ENCEPHALOPATHY DURING ARSENIC THERAPY FOR ASTHMA

Louis E. Prickman, M.D.
and
Clark H. Millikan, M.D., Rochester, Minn.

A serious potential danger inherent in the use of potassium arsenite (Fowler's solution) in the treatment of asthma is illustrated in the following case.

REPORT OF A CASE

A 34-year-old man came to the Mayo Clinic on June 8, 1952, and was hospitalized at once, because he was in critical condition. The patient had had both pneumonia and asthma in 1941 while in the Army. Nonseasonal asthma had recurred each year, usually in association with respiratory infections. There was no family history of allergy; the patient had no other known allergic condition and had shown no allergy to drugs that had been administered for respiratory infections.

On April 18, 1952, the patient had begun to take a liquid that contained arsenic prescribed by a physician. He had followed the directions the physician provided to eliminate danger from the arsenic and had even written to the physician for advice when trouble developed. Three weeks before admission to the Mayo Clinic, however, the patient could not read or drive, because his vision had become blurred. He had been able to do some work on his farm until about that time and then had to stop work because of dyspnea, although he was not bedfast. About two weeks before admission, edema of the ankles and puffiness of the eyelids were noted. Increased visual changes (blurring and partial loss of vision) were noted about the same time. The patient's walk had been unsteady since about June 1.

On June 7, after eating a fair noon meal, he complained of pain in his neck, had difficulty in walking, had numbness of the feet, and said they "felt like clubs." He ate little that evening, did not feel well, and noticed twitching. He retired at 9:00 p.m., awakened about 10:00 p.m., and got out of bed but could not find his way around the house and was frankly disoriented. He gradually became worse and more restless until at 6:00 a.m. on June 8 he did not recognize his wife. He continued a restless muttering and was delirious during the day of June 8, until he was brought to the clinic and hospitalized. The physician who had prescribed the arsenic preparation practiced far from the patient's home. Before he came to the clinic, therefore, the patient had consulted his family physician, who had administered seven doses of dimercaprol (BAL) to counteract arsenic poisoning.

On admission to the hospital, the patient was stuporous, delirious, and irritable and resisted passive motions of the extremities. He had twitching of the arms and stiffness of the neck, and Babinski signs were elicited bilaterally. The pupils were contracted and did not react to light. The eyes were in the sleep position, from which they did not deviate. He made defense reactions with the right hand but not with the left. The right leg reacted well to a pin prick, but the left leg did not. The rectal temperature on admission was 101.2 F, the pulse rate was 122 beats per minute and regular, respirations were 30 per minute, and the blood pressure was 130/86 mm. Hg. Cyanosis was present, and the patient was sweating profusely. The lips were dry and crusted. The heart was not enlarged. Inspiratory and expiratory crepitant and wheezing rales and rhonchi were heard over the entire lung fields. No consolidation was noted in the lungs. The liver was not palpable. Pitting edema, grade 2+ (on a grading basis of 1 to 4), was present in the ankles. Pigmentation and keratoses were not noted on the hands or feet. Examination of the ocular fundus was relatively inconclusive, but gross choking of the disks could not be seen. The pressure of the cerebrospinal fluid was elevated to 480 mm. of water, and the fluid was slightly yellow. It contained 10 lymphocytes, 1 polymorphonuclear leukocyte, 2 undifferentiated cells, and 2,400 erythrocytes per cubic millimeter. Cerebrospinal fluid protein was 20 mg. per 100 cc. (corrected for erythrocytes to 17 mg. per 100 cc.). A tentative diagnosis of diffuse hemorrhagic encephalopathy due to arsenic was made, and dimercaprol was administered. The patient was given oxygen, fluids intravenously, with aminophylline, crystalline and procaine penicillin, and phenobarbital sodium.

On the morning of June 9 the patient was disoriented, singing, and responded at times by speaking, which he had not done on the night of admission. He made more purposeful movements of the right hand and was able to deviate his eyes slightly. Edema had almost disappeared from the right leg and foot, and edema in the left lower extremity had decreased. Urinalysis disclosed a specific gravity of 1.027, acid reaction, albumin 2+, no sugar, erythrocytes 2+, and an occasional pus cell. The urine contained 0.10 mg. of arsenic per liter. The hemoglobin concentration was 16.4 gm. per 100 cc. of blood, and there were 4,770,000 erythrocytes per cubic millimeter and 12,000 leukocytes per cubic millimeter, of which 13% were lymphocytes, 7.5% monocytes, and 79.5% neutrophils. The erythrocyte sedimentation rate (Westergren method) was 1 mm. per hour. The concentration of blood urea was 28 mg. per 100 cc., plasma chlorides 88.5 mEq. per liter, and plasma carbon dioxide 38.0 mEq. per liter. A roentgenogram of the thorax showed scattered areas of increased density suggestive of diffuse early pneumonitis in the midzone of the right lung.

On June 9, the patient was transferred to the neurological section of the hospital, where treatment with dimercaprol 2 cc., preceded by doses of ephedrine, was continued at eight hour intervals. Oxygen, phenobarbital sodium, and penicillin also were given. The course was stormy for approximately 10 days. The patient was placed in an oxygen tent, and particular attention was given to maintaining the electrolyte balance. Administration of dimercaprol was continued until June 23, during which time he received a total of 34 cc. Treatment with one million units of penicillin daily was continued until June 17, and during this period the highest daily temperature was 100.7 F.

Asthmatic paroxysms, on June 9, responded poorly to epinephrine given subcutaneously and aminophylline, 7.5 grains (approximately 0.5 gm.) given intravenously, so 10 mg. of corticotropin, administered intravenously, was added to the

---

From the Division of Medicine and the sections of neurology and psychiatry, Mayo Clinic.

fluids. Intravenous use of aminophylline, oral use of ephedrine, and subcutaneous use of epinephrine usually controlled later asthmatic paroxysms, but asthmatic rales and rhonchi were always present. By June 12, the patient was clearing secretions from his throat; he swallowed the secretions, and the chest was then almost clear. Use of the oxygen tent was discontinued on June 14. The indwelling catheter was removed on June 20.

The cerebrospinal fluid was examined again on June 10 and 12. On June 10, the pressure was 520 mm. of water. The fluid contained 2 lymphocytes, 12 polymorphonuclear leukocytes, 8,000 erythrocytes per cubic millimeter, 40 mg. of protein per 100 cc., 115 mg. of sugar per 100 cc., and 660 mg. of chlorides per 100 cc. Cultures were negative for microorganisms. On June 12, the initial pressure was 140 mm. of water. The values in the fluid were: 4 lymphocytes, 3,733 erythrocytes, 25 mg. of protein per 100 cc., 88 mg. of sugar per 100 cc., and 680 mg. of chlorides per 100 cc. Smears of the cerebrospinal fluid were negative for acid-fast bacilli, and cultures for tubercle bacilli were negative. A specimen of urine on June 11 was small but was estimated to contain 0.40 mg. of arsenic per liter, and a specimen on June 13 contained 0.05 mg. of arsenic per liter. An analysis of the medicine that the patient had been taking before his hospitalization (until about May 31) showed 5 gm. of arsenic per liter.

On June 14, the patient was still stuporous, answered "yes" and "no," and obeyed commands to expectorate. The left upper extremity was completely flaccid and did not respond to stimulation, nor did the left leg respond except for spontaneous movement. The Babinski sign was elicited on the right. He could not see well enough to count fingers, and his neck remained stiff.

Examination of the ocular fundus on June 14 was still inconclusive because of the patient's restlessness, but the disks were flat, and there was a large flame-shaped retinal hemorrhage of the superior temporal margin of the left disk and a deep retinal hemorrhage below the left disk (2 D. away from the disk). The right disk was flat, and the veins were large, especially the inferior temporal vein, but no evidence of hemorrhage or hypertensive changes could be seen.

By June 15, the patient was generally much improved, although he was completely disoriented. He could turn himself, drink out of a glass, and follow simple directions. By June 16, he recognized relatives and could see light but apparently did not see fingers. Examination of the eyes on June 17 revealed slight reaction of the right pupil to light; the left pupil was fixed. The hemorrhages in the left eye were smaller and apparently being absorbed. Four round spots indicating deep hemorrhages were noted in the right eye. A diagnosis of amaurosis and toxic retrobulbar neuritis was made. On June 20, the patient was eating well and was able to walk. He was still amaurotic but seemed to see light consistently in the right temporal field. Extensor toe signs were absent. Roentgenograms of the chest and skull on June 17 showed nothing abnormal. The leukocyte count on June 21 was 6,300. Urinalysis showed specific gravity of 1.017, acid reaction, a trace of albumin, no sugar, and only an occasional pus cell.

The patient continued to improve generally and was discharged on June 26. He had no dyspnea, felt well, was eating well, was able to walk, and was oriented, but seemed completely blind and had poor memory. He was emotionally labile and facetious. He was advised to return in two to three months for further observation, but he has not felt this necessary.

An etiological investigation of the asthmatic bronchitis was not carried out during hospitalization because of the patient's serious illness; however, the history and findings were consistent with those seen in intrinsic asthmatic bronchitis. He was advised to avoid respiratory irritants such as colds, dusts, smoke, fumes, sudden temperature changes, cold frosty air, and any situation that promotes coughing and to use symptomatic remedies such as iodides, epinephrine, and aminophylline if necessary.

On March 16, 1953, the patient's wife wrote that he was able to distinguish dark colors, such as red, blue, and purple, could name a few playing cards, and could distinguish large letters. He had frequent headaches, and his head felt "thick." Some sensation was returning to his left arm and hand, and he could carry a pail in his left hand. He was also able to walk well. His memory, except for the period from January to September, 1952, was good. His attitude was pleasant, and he behaved normally. He was unable to ride in a car, because it made his head ache and made him feel "jumbled" for two or three days.

COMMENT

In discussing treatment for asthma, Gay and Gay[1] stated: "There have been no known deaths attributed to the medication, but there have arisen occasional episodes of arsenical and iodide reactions which have been corrected without mishap." Our experience does not agree with this statement. Sollmann[2] wrote that "Inorganic arsenic is capricious, unpredictable, and uncontrollable both as to good and harm, but the harm is more certain and generally more frequent than the good." Arsenic, particularly in the trivalent form, is a potentially dangerous drug and may cause changes in the skin, liver, peripheral nerves, and central nervous system. Our patient probably had some damage to certain peripheral nerves, but the most important toxic effects were in the brain. Hemorrhagic encephalopathy due to ingestion of arsenic is acute, and, unless treatment is started immediately, death may ocur in 24 to 72 hours after the onset of symptoms. This patient was able to eat dinner the evening of June 7 and by 6:00 a. m. of the next day was delirious. Stupor, coma, many types of abnormal movement (in this instance restlessness and twitching of muscles), convulsions, and almost any neurological deficiency may be associated with the disorder. Damage to the nervous system occurs quickly, is severe (multiple hemorrhages in the brain or spinal cord or both), and, although improvement can occur, may leave serious residual defects of function. When such symptoms appear in a person who has been taking arsenic therapeutically or who possibly has been exposed to the ingestion of arsenic, the diagnosis of arsenical encephalopathy must be considered and treatment with dimercaprol started immediately.

Dimercaprol is the compound 2,3-dimercaptopropanol. In arsenic poisoning, competition develops in the body between sulfhydryl groups of tissue enzyme systems and the sulfhydryl groups of dimercaprol. The sulfhydryl groups in the drug combine with the arsenic, permitting those of the tissue enzyme systems to return to normal action. The arsenic combined with the sulfhydryl groups of dimercaprol is excreted from the body. As implied, sulfhydryl groups already combined with arsenic can be made to release the metal when large doses of dimercaprol are given, and the toxic effects of arsenic on cells may be counteracted in this manner. Dimercaprol can be administered intramuscularly every four to six hours to patients who are acutely ill. Each vial contains 4 cc. of a 10% solution. Each cubic centimeter, therefore, equals 100 mg. of the drug. A dose of 2 to 2.5 mg. per kilogram of body weight is used. Toxic effects of dimercaprol are paresthesia, sweating, pain in the limbs and jaws, excessive lacrimation, blepharospasm, excessive salivation, vomiting, restlessness, and weakness.

---

[1] Gay, F. S., and Gay, E. D.: The Gay Treatment of Asthma, Mississippi Doctor 29: 142-143 (Nov.) 1951.

[2] Sollmann, T. H.: A Manual of Pharmacology and Its Applications to Therapeutics and Toxicology, ed. 7, Philadelphia, W. B. Saunders Company, 1948, p. 1132.

When dimercaprol is administered as directed, the toxic effects are not ordinarily dangerous; therefore, if a diagnosis of arsenic intoxication is suspected but has not been completely established, immediate treatment with dimercaprol is indicated. The serious action of arsenic on the nervous system may occur so quickly that the patient may die before laboratory confirmation of the diagnosis is possible. The physician who administered seven injections of dimercaprol before the patient's arrival at the Mayo Clinic is to be commended. This prompt and adequate administration of dimercaprol may well have saved the patient's life.

Even though arsenic is eliminated from the body the damage produced may be permanent. As with any severe vascular lesion or lesions of the brain, a definite defect in neurological function may persist, as in this case. Physical therapy and measures aimed at training the patient to perform certain ordinary actions constitute treatment in the months after the acute phase of the illness is past.

SUMMARY

The treatment of asthma with potassium arsenite (Fowler's solution) is potentially hazardous. Hemorrhagic encephalopathy developed rapidly in a man who was given potassium arsenite for treatment of asthma. This case illustrates only one of several hazards incident to arsenic therapy for asthma; others have been reported in THE JOURNAL [3] and elsewhere.[4] The self-administration of arsenic compounds without the supervision of a physician is strongly condemned.

[3] Pascher, F., and Wolf, J.: Cutaneous Sequelae Following Treatment of Bronchial Asthma with Inorganic Arsenic: Report of Two Cases, J. A. M. A. **148**:734-736 (March 1) 1952. Silver, A. S., and Wainman, P. L.: Chronic Arsenic Poisoning Following Use of an Asthma Remedy, ibid. **150**:584-585 (Oct. 11) 1952. Pelner, L., and Waldman, S.: Toxicity of Arsenic as Used in Treatment of Asthma, Correspondence, ibid. **150**: 1511-1512 (Dec. 13) 1952.

[4] Pelner, L., and Waldman, S.: Toxic Hepatitis Caused by Prolonged Inorganic Arsenic Intake: Studies on Liver Dysfunction, New York J. Med. **51**:2511-2514 (Nov. 1) 1951.

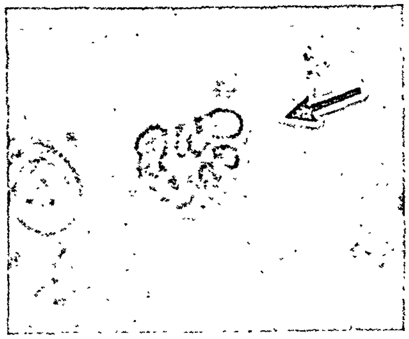
STAIN FOR LIPID BODIES IN URINARY SEDIMENT

Alvin E. Parrish, M.D.
and
Louis K. Alpert, M.D., Washington, D. C.

Staining urinary sediment to facilitate the identification of various constituents has not been widely utilized until recently.[1] Sudan III has long been used, to a limited extent, for the identification of fat in the urine.[2] Since the presence of fat in casts or cells in the urinary sediment is frequently associated with renal tubular degeneration in diseases such as glomerulonephritis, intercapillary glomerulosclerosis, renal amyloidosis, lupus erythematosus, and "lipoid" nephrosis, the recognition of fat in the urinary sediment is helpful in making a correct diagnosis. Usually it is observed through a Nicol prism or other polarizing mechanism in the lens system of a microscope. By using Sudan III, we have developed a simple technique for the demonstration of fat globules in urinary sediment.

METHOD

Fresh urine specimens are centrifuged and the supernatant fluid decanted, leaving approximately 0.2 to 0.3 cc. in the tube. Two to three drops of a saturated solution of Sudan III dissolved in 70% alcohol are mixed with the sediment. A drop of this mixture is placed on a microscope slide and covered with a cover glass. Fifteen to 60 minutes later, this specimen is examined under an oil immersion lens. Fatty material in casts and cells appears as salmon-red globules (see figure). A blue light source enhances the color. These globules stand out in contrast to the other material that is not stained.



Lipid globules in renal tubular cell stained with Sudan III.

This method has been used in the examination of the urine of 24 patients with renal disease associated with the presence of lipid in the urinary sediment and has been compared with the usual procedure for observing doubly refractile bodies with the use of polarized light. In all instances in which doubly refractile lipid was found, staining with Sudan III was also observed. Usually a greater quantity of Sudan III staining material was noted than birefringent bodies.

SUMMARY

A simple procedure for the demonstration of lipid bodies in the urinary sediment is described.

2650 Wisconsin Ave., N.W. (7) (Dr. Parrish).

From the Medical Service of the Veterans Administration Hospital and the Department of Medicine of the George Washington University.

Sponsored by the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published are those of the authors and do not reflect the opinion or policy of the Veterans Administration.

[1] Sternheimer, R., and Barney, M.: Clinical Recognition of Pyelonephritis, with a New Stain for Urinary Sediments, Am. J. Med. **11**:313, 1951.

[2] Edelmann, A., and Karpel, L.: Eosinophilie der Harnwege im Verlaufe von Asthma bronchiale nebst einem Bietrag zur Farbemethodik der Harnsedimente, Deutsche med. Wchnschr. **38**:1271, 1912. Johnson, E. S.: An Investigation into the Clinical Value of Staining Urinary Deposits, Dublin J. M. Sc. **138**:81, 1914.

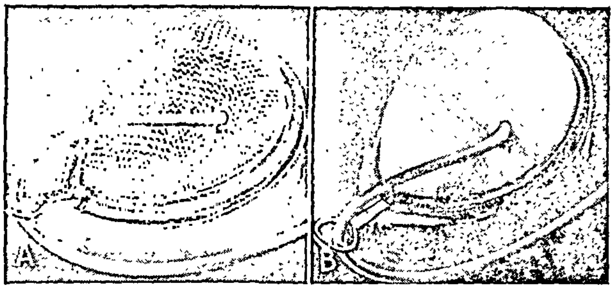
Tumors in Region of Optic Chiasm.—Early in their development, tumors of the region of the optic chiasm impair vision; as they increase in size they lead to blindness. Preservation of vision is the chief aim of treatment, whether it be by surgical intervention or irradiation, and the effectiveness of treatment is judged on the basis of visual fields and acuity. Consequently, ophthalmologists must be on the alert for these tumors in every case of visual loss not explained by ophthalmoscopic examination.—C. W. Rucker, M.D., Tumors of the Region of the Optic Chiasm, *Digest of Ophthalmology and Otolaryngology*, July, 1953.

MODIFIED ETHER MASK FOR SIMULTANEOUS ADMINISTRATION OF ETHER, AIR, AND OXYGEN

Bernard Stodsky, M.D., Chicago

Significant reduction in oxygen saturation of arterial blood by the application of an ether mask to the patient's face and further reduction by the application of ether to the mask have been demonstrated by Faulconer and Latterell.[1] They showed that addition of 500 cc. of oxygen per minute to the ether and air mixture under the mask would restore the arterial oxygen saturation to normal levels and suggested that this procedure be practiced routinely in semiopen ether-air administration. Acting on this suggestion, I devised a modification of the standard Yankauer ether mask that provides a simple, dependable, and unencumbered method for addition of oxygen.

As shown in the figure, shower curtain eyelets, or grommets (Dot eyelets no. 659), are riveted in place through the screening on the right and left sides of the mask (to accommodate right-handed and left-handed anesthetists). The eyelet of this size accommodates a no. 14F red rubber urethral catheter. Four to six additional holes are punched in the end of the catheter, and it is "strung" through the mask, as shown in the figure. It is important that the catheter be threaded through the ring of the retaining spring before it is passed through the gauze mesh and eyelet, since this provides strain relief and prevents the catheter's slipping out of the mask. A pencil point is twirled through the gauze and into the eyelet to separate the gauze mesh for passage of the catheter. The catheter is connected to a metered source of oxygen, and, with the flow set at a starting rate of 500 cc. per minute, the mask is applied to the face. Induction is smooth and pleasant, and cyanosis due to reduced arterial oxygen saturation is eliminated.



A, modified ether mask, showing position of eyelet and rubber catheter; *B*, the mask ready for use.

SUMMARY

A simple modification of the standard Yankauer ether mask that makes possible efficient, unencumbered, simultaneous administration of ether, air, and oxygen by the semiopen method is described.

8827 Dorchester.

Director, Anesthesia Department, Michael Reese Hospital.

[1] Faulconer, A., Jr., and Latterell, K. E.: Tensions of Oxygen and Ether Vapor During Use of the Semi-Open, Air-Ether Method of Anesthesia, Anesthesiology **10**: 247 (May) 1949.

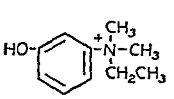
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. Stormont, M.D., *Secretary.*

Edrophonium Chloride.—Tensilon Chloride (Hoffmann-La-Roche).—$C_{10}H_{16}ClNO$.—M.W. 201.69.—Dimethylethyl(3-hydroxyphenyl)ammonium chloride.—The structural formula of edrophonium chloride may be represented as follows:



Actions and Uses.—Edrophonium Chloride is a competitive antagonist of skeletal muscle relaxants such as tubocurarine, similar-acting curare derivatives, and gallamine triethiodide, which produce their effect by interference with the ability of acetylcholine to depolarize the endplate at the myoneural junction. It displaces such curare-like drugs from their attachment to the muscle cell, permitting resumption of the normal transmission of neuromuscular impulses. Therefore, the drug is useful as an antidote against the peripheral action of curariform agents, either to terminate their therapeutic relaxant effect when it is no longer required, or to reverse respiratory muscle paralysis caused by overdosage. Edrophonium chloride does not combat circulatory collapse which is sometimes associated with respiratory depression produced by a central effect of curariform drugs. With extremely large doses, the action of edrophonium becomes curariform and capable of potentiating rather than antagonizing the peripheral paralytic effect of curare. In the presence of apnea, the response to the antidotal action of edrophonium cannot be observed, and there is no clinical guide to effective dosage. For these reasons, the drug should be employed only as a supplement to artificial respiration and oxygen therapy in the treatment of respiratory depression caused by curare overdosage; but, in order to avoid overdosage, edrophonium should be used for this purpose only when some definite sign of voluntary respiration, such as excursion of the diaphragm, can be observed. Under no circumstances should the drug be employed without observing proper precautions in the administration and dosage of curariform agents.

Edrophonium exhibits the parasympathomimetic actions characteristic of neostigmine to some degree, but in the antidotal dosage range, it is slightly shorter-acting and produces a lower incidence of side-effects. Like the anticholinesterases such as neostigmine, edrophonium prolongs rather than antagonizes the skeletal muscle relaxant action of succinylcholine chloride and should not be used as an antidote for that drug. Increased salivation and bronchiolar spasm have been occasionally reported in patients with asthma, bradycardia, and cardiac dysrhythmia in conjunction with electrocardiographic changes in older patients. The drug, therefore, should be employed with caution in bronchial asthma or cardiac disease. Atropine usually relieves such side-effects.

Edrophonium chloride is also useful as a diagnostic agent to differentiate between the presence or absence of myasthenia gravis, and for the emergency treatment of myasthenic crises. Its action is too short for maintenance therapy of that disease. Because of its shorter action, edrophonium has the advantage over neostigmine as a diagnostic agent of permitting repeated tests on the same patient several times in an afternoon. The diagnostic use of edrophonium is based upon its ability to produce increased muscle strength without fasciculations when administered to patients with myasthenia gravis. In nonmyasthenic patients the drug produces fasciculations but no increase in strength.

Dosage.—As an antidote for curariform drugs, edrophonium chloride is administered by intravenous injection in doses of 10 mg. (1 cc. of a solution containing 10 mg. per cubic centimeter). Smaller doses of 5 mg. each may be adequate for termination of curarization following electroshock therapy. When given to counteract curare overdosage, the effect of each dose on the respiration should be carefully observed before it is repeated and artificial ventilation should always be employed. The maximal dose for any one patient should be 30 mg. (plus or minus 10 mg.). Because the action of edrophonium is brief, it should not be given prior to, or as a prophylactic against, the administration of curariform agents. It should be given only at the time its antidotal effect is needed.

As a diagnostic agent in suspected cases of myasthenia gravis, a 10 mg. dose of the drug is injected intravenously. In persons having that disease, increase in muscle strength is observed with maximum improvement occurring within 30 seconds to 5 minutes following injection. In myasthenic crises the drug should be administered by continuous intravenous drip only for the duration of the emergency.

Tests and Standards.—

Physical Properties: Edrophonium chloride is a white, odorless, crystalline powder, m.p. 163-169° (with decomposition). It is very soluble in water, freely soluble in alcohol, and practically insoluble in ether. The pH of a 1% solution is 4.0-5.0

Identity Tests: Dissolve about 50 mg. of edrophonium chloride in 10 ml. of water, and add 2 drops of nitric acid and 1 ml. of silver nitrate T.S.: a white precipitate forms, which is insoluble in diluted nitric acid, but soluble in diluted ammonia solution *(presence of chloride).*

Dissolve about 50 mg. of edrophonium chloride in 5 ml. of water and add about 5 ml. of a saturated solution of picric acid. Allow the reaction mixture to stand for 10 min., filter, wash the precipitate with water, and dry in a vacuum desiccator *(Caution! May be explosive. Use safety glass shield.):* the yellow picrate melts at 161-163°.

A 0.0025% solution, prepared as described in the spectrophotometric assay for edrophonium chloride, exhibits ultraviolet absorption maxima at about 217 mμ [specific absorbancy, E(1%,1 cm.), about 291] and 273 mμ [specific absorbancy, E(1%,1 cm.), about 107], and a minimum at about 240 mμ. The ratio between the optical densities at 217 and 273 mμ is 2.6-2.8.

Purity Tests: Dry about 1 gm. of edrophonium chloride, accurately weighed, at 105° for 4 hours: the loss in weight does not exceed 0.5%.

Char about 0.5 gm. of edrophonium chloride, accurately weighed, cool the residue, add 1 ml. of sulfuric acid, heat cautiously until the evolution of sulfur trioxide ceases, ignite, cool, and weigh: the residue does not exceed 0.5%.

Assay: (Edrophonium Chloride) Prepare a 0.0025% solution of edrophonium chloride as follows. Transfer to a 100 ml. volumetric flask about 0.25 gm. of edrophonium chloride, accurately weighed, fill to the mark with water, and mix. Transfer to a second 100 ml. volumetric flask 10 ml. of this solution, fill to the mark with water, and mix. Transfer to a third 100 ml. volumetric flask 10 ml. of this last solution, fill to the mark with water, and mix. Spectrophotometrically determine the absorbancy in a 1 cm. quartz cell at 273 mμ, using water as a blank. The concentration of edrophonium chloride in the solution in mg./ml. = absorbancy ÷ 10.7. The amount of edrophonium chloride is not less than 95.0 nor more than 105.0%.

Prepare 0.1 *N* perchloric acid as follows. Add 14.5 gm. of 70-72% perchloric acid to 960 ml. of glacial acetic acid contained in a 1000 ml. volumetric flask and mix well. With cooling and constant stirring, slowly add 24.2 gm. of acetic anhydride. Allow the solution to stand for 24 hours. Standardize the acid at 25° against potassium acid phthalate in glacial acetic acid (1:40), using 5 drops of 1% crystal violet in glacial acetic acid as an indicator and titrating to a blue-green end point. Transfer to a 250 ml. Erlenmeyer flask about 0.25 gm. of dry edrophonium chloride, accurately weighed, add 40 ml. of glacial acetic acid, and, if necessary, heat gently on a steam bath to complete solution. Cool and add 10 ml. of a 1% solution of mercuric acetate in glacial acetic acid. Titrate the solution with 0.1 *N* perchloric acid in glacial acetic acid, using as an indicator 5 drops of a 1% solution of crystal violet in glacial acetic acid. Each milliliter of 0.1 *N* acid is equivalent to 0.02017 gm. of edrophonium chloride. The amount of edrophonium chloride is not less than 98.5 nor more than 101.5%.

Dosage Forms of Edrophonium Chloride

SOLUTION. *Identity Tests:* To an amount of solution containing the equivalent of about 50 mg. of edrophonium chloride, add 5 ml. of a saturated solution of picric acid. Allow the mixture to stand for about 10 min., filter, and wash the precipitate with water and dry in a vacuum desiccator *(Caution! May be explosive. Use safety glass shield.):* the yellow picrate melts at 161-163°.

Assay: (Edrophonium Chloride) Transfer to a beaker an amount of solution, accurately measured, equivalent to 25 mg. of edrophonium chloride and evaporate the solution to dryness on a steam bath. Add about 5 ml. of water and again evaporate to dryness. Repeat the process with two additional 5 ml. portions of water. Dissolve the residue in water, quantitatively transfer the solution to a 100 ml. volumetric flask, fill to the mark with water, and mix. Transfer to a second 100 ml. volumetric flask 10 ml. of this solution, fill to the mark with water, and mix. Spectrophotometrically determine the absorbancy in a 1 cm. quartz cell at 273 mμ, using water as a blank. The concentration of edrophonium chloride in the solution in mg./ml. = absorbancy ÷ 10.7. The amount of edrophonium chloride is not less than 93.0 nor more than 107.0% of the labeled amount.

Hoffmann-LaRoche, Inc., Nutley, N. J.

Solution Tensilon Chloride: 10 cc. vials. A solution containing 10 mg. of edrophonium chloride in each cubic centimeter. Preserved with 0.2% sodium sulfite and 0.5% phenol. U. S. trademark 570,951.

Thiopental Sodium-U.S.P. (See New and Nonofficial Remedies 1953, p. 261).

Abbott Laboratories, North Chicago, Ill.

Pentothal Sodium (Rectal): 1.5 gm. vials. Buffered with 90 mg. of anhydrous sodium carbonate.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

APPARATUS ACCEPTED

The following additional products have been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

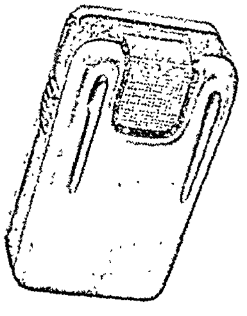
RALPH E. DE FOREST, M.D., *Secretary.*

Audivox Hearing Aid, Model 70

Audivox, Inc., 123 Worcester St., Boston 18.

The Audivox Hearing Aid, Model 70, is a three tube instrument requiring a 1.5 volt mercury type A-battery and a 15 volt B-battery. With batteries, receiver, and receiver cord the total weight ranges from 128.2 to 132.3 gm., depending on the type of receiver. Five different receivers are supplied. The body of the instrument measures 75 by 45 by 22 mm.

Evidence of satisfactory construction and performance was obtained by the Council.



Audivox Hearing Aid, Model 70

Schroeter Whirlpool Carriage, Model B

C. M. Sorenson Co., Inc., 50-19 47th Ave., Woodside, Long Island, N. Y.

The Schroeter Whirlpool Carriage is a device for agitating the water in a bathtub or basin. It can be moved alongside the tub, the top of the apparatus then raised, rotated through an angle of 90 degrees, and lowered over the side of the tub into the water.

This apparatus is a successor to the Schroeter Whirlpool Carriage, Model A, accepted by the Council in 1948, when it was manufactured by Whirlpool Carriage, Inc., of Brooklyn. Model B is lighter, weighing only 27 kg. (50 lb.) and is high enough to swing over the edge of a tub 45 cm. (18 in.) above the floor. The motor requires either alternating or direct current at 110 volts and draws 400 watts.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
535 N. DEARBORN ST. . . . . CHICAGO 10, ILL.
Editor . . . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

CHLOROPHYLL AS A DEODORANT

For a number of years water-soluble derivatives of chlorophyll have been used for the purpose of eliminating unpleasant odors from wounds[1] or from the air. More recently a number of investigators[2] have reported that chlorophyll derivatives taken orally are capable of reducing unpleasant body odors. On the basis of these and other reports enterprising promoters have sold tremendous quantities of chlorophyll derivatives to the public in tablets, mouth washes, tooth pastes, and other vehicles. More recently several authors have questioned the whole concept of chlorophyll deodorization. Brocklehurst[3] of the University of Glasgow has tested the effect of four water-soluble derivatives of chlorophyll on a variety of odors in the laboratory and in man and has found no evidence that these preparations exerted any significant deodorizing action under any of the conditions of his experiments. Two of the derivatives used were proprietary preparations sold for oral use and for room deodorization respectively.

In his first experiments Brocklehurst used only objective criteria for the evaluation of the action of the chlorophyll derivatives so as to eliminate the well-known effects of suggestion on the sense of smell. Constant quantities of methylmercaptan gas (one of the substances contributing to the odor of the gas normally present in the lower bowel) were passed through filter paper screens soaked with chlorophyll derivatives, or through solutions of these derivatives, and the amount of unaltered methylmercaptan emerging was measured chemically. He found that the water-soluble chlorophyll derivatives removed or altered no more methylmercaptan than did plain water and in one experiment removed less.

In subsequent experiments the sense of smell was used to evaluate the effect of chlorophyll derivatives on various odors, but attempts were constantly made to eliminate the element of suggestibility. Small quantities of methylmercaptan, ether, or syrup of garlic were placed under bell jars in which were suspended filter papers saturated with various soluble chlorophyll derivatives. The characteristic odor of each of the three substances was still present in the jars 12 to 47 hours later in 21 or 22 tests. In the 22nd test the odor of the chlorophyll derivative was so strong that it was believed to have masked the mercaptan odor. Similarly, mixtures of chlorophyll derivatives and syrup of garlic retained their unpleasant odor for 30 days, and a mixture of onion slices and chlorophyll derivatives developed such an offensive odor after 24 hours that the experiment had to be abandoned.

Brocklehurst next tested chlorophyll derivatives clinically in a patient who was incontinent of urine. This patient was given proprietary "chlorophyll" tablets or sodium copper chlorophyllin solution in three-day courses alternating with three-day periods without chlorophyll derivatives. The days on which the different courses were given were not known to the observer. The characteristic and unpleasant odor of urine was present throughout the test period. In two other subjects the odor imparted to the urine by asparagus was not eliminated after the ingestion of 25 times the recommended daily doses of water-soluble chlorophyll derivatives. This observation was confirmed by Alstead[4] in 10 additional patients. Brocklehurst also noted that the ingestion of 800 mg. of chlorophyll substance daily for a week did not cause the smell of feces or axillary perspiration to disappear.

Other students of the problem have also taken issue with the claims made for chlorophyll and its derivatives. E. R. Weaver[5] of the National Bureau of Standards comments: "We have no reason whatever to believe that chlorophyll ever has anything to do with deodorization." A. H. Corwin[6] of the Johns Hopkins University department of chemistry, states that the whole concept of chlorophyll as a bacteriostatic and deodorizing agent is founded on a misconception. While it has been claimed that chlorophyll breaks down carbon dioxide and sets free oxygen that inhibits the action of odor-producing anaerobic bacteria, Corwin points out that "chlorophyll has no such property. Only intact chloroplasts have the power to fix carbon dioxide and then only in the presence of light. . . . Successful photosynthesis requires not only unaltered chlorophyll, but also unaltered chloroplasts in much more precise organization than is possible in solution." Furthermore, the commercial water-soluble preparations do not contain chlorophyll, which is very insoluble, but rather the products of alkaline hydrolysis of chlorophyll (chlorophyllins), in which subsequently the central magnesium atom has been replaced by copper or nickel. The final products are believed to be copper or nickel pheophytins rather than chlorophyllins.[7] In addition, according to Corwin, the standard commercial preparations contain a number of impurities. Several observers have suggested that the activity of chlorophyll derivatives used as space deodorants may be due, in part at least, to the presence in such preparations of some fragrant substance such as pine oil that can mask less pleasant odors, or to the presence of a small amount of formaldehyde, which is capable of paralyzing olfactory nerve endings so that unpleasant odors can no longer be detected. One of the proprietary chlorophyll derivatives tested by Brocklehurst contained a perfume that fairly effectively masked the odor of methylmercaptan in solution, but only when the mixture was shaken to permit the odor of the perfume to emerge.

---

[1] Moss, N. H.; Morrow, B. A.; Long, R. C., and Ravdin, I. S.: Effectiveness of Chloresium in Wound Healing and Deodorant Effects, report of the Council on Pharmacy and Chemistry, J. A. M. A. **140**: 1336 (Aug. 27) 1949. Gruskin, B.: Chlorophyll—Its Therapeutic Place in Acute and Suppurative Disease: Preliminary Report of Clinical Use and Rationale, Am. J. Surg. **49**: 49 (July) 1940.

[2] Westcott, F. H.: Oral Chlorophyll Fractions for Body and Breath Deodorization, N. Y. State J. Med. **50**: 698 (March 15) 1950. Montgomery, R. M., and Nachtigall, H. B.: Oral Administration of Chlorophyll Fractions for Body Deodorization, Postgrad. Med. **8**: 401 (Nov.) 1950. le Vann, L. J.: The Control of Unpleasant Odours in Hospital Wards, Canad. M. A. J. **67**: 58 (July) 1952.

[3] Brocklehurst, J. C.: An Assessment of Chlorophyll as a Deodorant, Brit. M. J. **1**: 541 (March 7) 1953.

[4] Alstead, S.: Chlorophyll as a Deodorant, correspondence, Brit. M. J. **1**: 832 (April 11) 1953.

[5] Weaver, E. R., quoted by Corwin, A. H., before the New York Section of the American Chemical Society Dec. 5, 1952, and reported in Chem. & Engineering News **30**: 5248 (Dec. 15) 1952.

[6] Corwin, A. H.: Chlorophyll on Review, read before the New York Section of the American Chemical Society, Dec. 5, 1952, and reported in Chem. & Engineering News **30**: 5248 (Dec. 15) 1952.

[7] Thimann, K. V.: Personal communication to the author.

The masking mechanism would not, of course, explain the reputed action of ingested chlorophyll in reducing body odors. So many observers have reported such effects that they cannot be dismissed lightly, but it must be remembered that the sense of smell is one of the least reliable for purposes of quantitative analysis of stimuli because of the phenomenon of rapid fatigue and the potent influence of suggestion. Brocklehurst attempted to minimize such variables by recording only the presence or absence of odor without trying to measure variations in intensity. This may account in part for the differences between his conclusions and those of other workers. It has also been suggested that variations in the composition of different commercial preparations may account for such discrepancies. It seems apparent that no final conclusion can be reached about the deodorizing effects of chlorophyll derivatives until the composition of the various preparations is more exactly delineated, the fate of ingested chlorophylls in the body is determined, and more objective testing has been done.

CAT SCRATCH DISEASE AND PARINAUD'S OCULOGLANDULAR SYNDROME

A new clinical entity characterized by subacute lymphadenitis, in which the lesion frequently suppurated and healed without a scar was reported in 1950 by Debré and his co-workers.[1] The patients often had a history of being scratched by a cat. This clinical entity was recognized in the United States by Foshay of Cincinnati about 20 years before the French workers described it. In the course of his studies on tularemia Foshay had recognized this particular entity and had prepared an antigen from the pus of an involved lymph node that gave positive reactions on intradermal injections. Foshay did not report these observations; however, he had given Debré a supply of his antigen. Recently, Mollaret and his collaborators [2] announced the discovery of the particular virus causing the disease.

In 1889 Parinaud presented before the Ophthalmologic Society of Paris three cases of conjunctivitis acquired from slaughterhouse animals and accompanied by pronounced enlargement of regional lymph nodes. Inoculation of the material obtained from these nodes into guinea pigs gave negative results. In a recent review Allen [3] defines Parinaud's oculoglandular syndrome as a conjunctivitis with a definite clinical picture and a variety of causative agents, such as Leptothrix, Mycobacterium tuberculosis, Pasteurella tularensis, and virus. Verhoeff believed that Leptothrix was the etiological agent in all cases. Pesmé and Marchand [4] reported a case of conjunctivitis with swelling of the preauricular lymph nodes and fever in a 6-year-old boy who had been bitten and scratched by a cat. An intradermal test with an antigen of cat scratch fever obtained from the pus of lymph nodes of a patient from Debré's laboratory gave a positive reaction.

Henry [5] reported eight cases of oculoglandular conjunctivitis due to Leptothrix in seven of which the patients gave a history of exposure to cats. She believed the source of infection was probably from cats and that this could explain the common occurrence of this entity in children. Lavergne [6] and his associates reported about the same time a case of Parinaud's syndrome in which the diagnostic tests for tularemia, lymphogranuloma venereum, and syphilis were negative, but the intradermal skin test with cat scratch antigen gave a positive reaction. Cassady and Culbertson report [7] in a recent issue of the *A. M. A. Archives of Ophthalmology* four cases of Parinaud's oculoglandular syndrome. All of the diagnostic tests in their cases were negative. When an antigen of cat scratch fever became available, the patients were reexamined and all of them gave a strongly positive skin reaction against this antigen. These authors point out that, although Leptothrix has been held responsible for the disease oftener than any other organism, this organism is frequently found as a saprophyte, unassociated with disease of any kind. Tularemia and yeast-like organisms have only in rare instances been proved causative. The fact that Parinaud's conjunctivitis is apparently not transmitted by man makes the likelihood of an animal vector seem reasonable. The clinical features, particularly systemic reaction occurring in Parinaud's oculoglandular syndrome, are quite similar to those occurring in the cutaneous glandular form of cat scratch fever. The syndrome, they stress, seems to vary from the latter entity only in its portal of entry and in the location of its primary complex.

It appears, therefore, quite likely that Parinaud's oculoglandular syndrome is a manifestation of cat scratch fever, which differs in that the conjunctiva is the site of primary infection, the initial lesion being one of conjunctivitis with granulation, followed by regional lymphadenitis.

---

1. Debré, R., and others: La maladie des griffes de chat, Semaine hôp. Paris **26**: 1895-1904 (May 30) 1950.

2. Mollaret, P.; Reilly, J.; Bastin, R., and Tournier, P.: La découverte du virus de la lymphoréticulose bénigne d'inoculation: II. inoculation expérimentale au singe et colorations, Presse méd. **59**: 701-704 (May 23) 1951.

3. Allen, J. H.: Lids, Lacrimal Apparatus and Conjunctiva: Review of Recent Literature, A. M. A. Arch. Ophth. **45**: 100-119 (Jan.) 1951.

4. Pesmé and Marchand: Sur un nouveau type de conjonctivite infectieuse probablement transmise par un chat, J. méd. Bordeaux **127**: 127-129 (Feb.) 1950.

5. Henry, M.: Oculoglandular Conjunctivitis Due to Leptothrix, J. Pediat. **37**: 535-544 (Oct.) 1950.

6. de Lavergne, V.; Thomas, C.; Cordier, J., and Algan, B.: La forme oculo-ganglionnaire de la lymphoréticulose bénigne d'inoculation, Bull. et mém. Soc. méd. hôp. Paris **67**: 985-987 (June 29-July 6) 1951.

7. Cassady, J. V., and Culbertson, C. S.: Cat-Scratch Disease and Parinaud's Oculoglandular Syndrome, A. M. A. Arch. Ophth. **50**: 68-74 (July) 1953.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

A truce has been signed in Korea. I join with other Americans in praying that a real and permanent peace can be achieved. While those entrusted with such political matters debate the nature of the peace, our Korean veterans will be coming home to resume their civilian pursuits. A grateful nation will pay tribute to all alike, which is as it should be. Few men in war can choose their own assignments.

Unfortunately the laudable desire to "do right by our boys" has been preempted by certain organizational leaders, whose motives are sometimes difficult to discern. They are the persons who would make of war veterans a class of citizens apart from the rest of the nation. They would make veterans dependent on the government for their every basic need. They forget that the majority of veterans are self-sufficient, intelligent, tax-paying citizens who do not wish to be relegated to second-class citizenship!

In a democratic nation we cannot have two types of citizenship. To serve one's country is a duty and an honor and the only claim that any of us has as basic right is that principle for which we fought—individual freedom and dignity. Those of us who took active part in our nation's wars did not follow the colors to become wards of the government.

The campaign to perpetuate free medical care in government hospitals for veterans with non-service-connected disabilities is a prime example of misguided thinking. Certainly no one can deny that a man who has served his country in uniform and has become physically handicapped as a result of such service is entitled to special consideration. The American Medical Association is in complete accord with the overwhelming sentiment of the American people in this regard. And the A. M. A. feels strongly that the federal government should provide the finest medical care obtainable for such veterans. In fact, it is largely through the efforts of the medical profession that the quality of veterans' medical care has been greatly improved over the years.

But the A.M.A. is unalterably opposed to a program of veterans' medical care in which more than 500 million dollars was expended last year alone, and of which amount only 178 million dollars went for the care of service-connected disabilities. In the face of a veteran population that is approximately 20 million, and that is increasing at the rate of 1 million annually, there is much pressure being brought on members of Congress to keep alive a medical care program for veterans with non-service-connected disabilities. Strong efforts are being made to encourage the building of more Veterans Administration hospital facilities. Yet in his annual report last year the director of the Veterans Administration stated that 7,274 otherwise available hospital beds were closed because of lack of professional personnel. Furthermore, a management survey of VA activities showed that 51,000 beds would serve all future needs of veterans with service-connected disabilities. In 1952, the VA hospital network had a total of 116,986 beds. During the past few years, with upwards of 500,000 veterans making use of the available VA hospital facilities each year, more than 80% of the patients who were treated had ailments that did not result directly from, nor were aggravated by, their military service.

Under the Hill-Burton program, enacted in 1946, a total of $542,500,000 has been expended by the federal government in encouraging local communities in each state to meet their own hospital needs. Communities that have built new hospitals under the Hill-Burton program have maintained them without further cost to the federal government. Of utmost importance is the fact that this program has been working effectively to improve the availability of hospital care for the entire population, including veterans. On the other hand, the Veterans Administration system, which is designed to provide care for a limited segment of the population, has received from Congress appropriations of many millions of dollars since about 1945 to add more hospital beds for veterans.

This duplication of effort on the part of the federal government is one of the basic reasons why the American Medical Association opposes the further expansion of the hospital facilities of the Veterans Administration and the perpetuation of medical care at federal expense for veterans who have non-service-connected disabilities.

Veterans Administration hospital staffs are doing a splendid job in caring for the patients in their charge. The American Medical Association believes, however, that the medical care of veterans with service-connected disabilities can be further improved if the care of most ex-servicemen with non-service-connected disabilities is made the responsibility of their respective community hospitals.

EDWARD J. MCCORMICK, M.D., Toledo, *Ohio*

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

Taft Cancer Research Scholarships

Senator Magnuson (D., Wash.) proposes in S. 2571 to establish 10 yearly scholarships in cancer research, to be known as the Robert A. Taft Memorial Scholarships. These would be awarded by a committee of six, consisting of two members appointed by the Damon Runyon Fund, two by the National Cancer Society, and two by the National Cancer Institute of the Public Health Service. National Science Foundation funds would be used to finance the scholarships; provision would be made for setting aside $100,000 a year for this purpose. The bill was introduced and ordered to lie on the table so that it could be brought up on the Senate floor next January without being referred to a committee.

Income Tax Deductions

Senator Johnson (D., Colo.) proposes in S. 2495 to allow deductions not to exceed $150 for medical care including "court costs, attorneys' fees, and other necessary costs and fees incidental to legal proceedings for the adoption . . . of a child" for income tax purposes. This measure was referred to the Finance Committee.

Veterans Compensation for Loss of Lung

Senator Dirksen (R., Ill.) would amend the veterans regulations by S. 2576 to "provide additional compensation for the loss or loss of use of a lung as a result of service-incurred disability in time of war." This measure was referred to the Finance Committee.

Federal Aid to State or Territorial Homes

Congressman Curtis (R., Mass.) has introduced a bill, H.R. 6659, which would "increase the amount of Federal aid to State or Territorial homes for the support of disabled soldiers and sailors of the United States" from $500 to $750 per year. This bill was referred to the Armed Services Committee.

Extension of Social Security

Congressman Kean (R., N. J.) has introduced a bill, H.R. 6846, which would broadly revise and extend Old-Age and Survivors Insurance to 10,500,000 more persons, including physicians. This measure is identical with H.R. 6812 (Reed), previously reported. Both bills were referred to the Ways and Means Committee.

Social Security for All Citizens

Congressman Mack (R., Wash.) proposes in H.R. 6796 to amend the Social Security Act "to permit all citizens of the United States to receive at least minimum old-age and survivors insurance benefits, and, for the purpose of computing the primary insurance amount of an individual, such individual shall be deemed to have an average monthly wage of at least $100." There are also other changes increasing benefits in this measure. The bill was referred to the Ways and Means Committee.

Lower Retirement Age for Social Security Benefits

Congressman King (D., Calif.) proposes in H.R. 6666 to reduce from 65 to 60 the age at which retirement benefits would be payable. This bill was referred to the Ways and Means Committee.

Earnings Allowed Social Security Beneficiaries

Congressman Friedel (D., Md.) proposes in H.R. 6663 to increase from $75 to $100 per month the amount of income from wages or self-employment a beneficiary of social security may receive without losing his social security pension. The same proposal was made by Congressman Kean (R., N. J.) in H.R. 3608. This measure was referred to the Ways and Means Committee.

Financing Investigation of Tax-Exempt Foundations

Congressman Reece (R., Tenn.) in H. res. 373 provides $50,000 for the House Select Committee to Investigate Tax-Exempt Foundations. The measure was referred to the House Administration Committee, reported back to the House, and passed on August 1.

Vocational Rehabilitation for the Blind

Congressman Wainwright (R., N. Y.) proposes in H.R. 6657 to amend the Vocational Rehabilitation Act to require that all vending stands on federal property be operated by licensed blind persons if they are available, unless the site is certified by the state as unsuitable for operation by a blind person. A state agency must be designated to license blind persons to operate vending stands, and such agency must cooperate with the U. S. Department of Health, Education, and Welfare. The bill would subsidize blind vendors, including the purchase of initial stock, and would provide for loans to disabled individuals for "tools, equipment, initial stocks and supplies, including livestock, and capital advances." The measure was referred to the Education and Labor Committee.

Income Tax Deductions

The personal income tax exemption of the taxpayer "including the exemption for a spouse, the exemption for a dependent, and the additional exemption for old age or blindness" would be increased from $600 to $1,000 by a proposal of Congressman Holtzman (D., N. Y.) in H.R. 6511. This measure was referred to the Ways and Means Committee.

Income Tax Deductions for Annuities

Congressman Holtzman (D., N. Y.) has introduced a measure, H.R. 6509, which would exclude from taxable income "all amounts up to $2,500 per annum, received as a retirement annuity or pension" provided by governmental or private employer and any annuity purchased by the taxpayer himself. In the latter case, however, the tax exemption would apply only to the money actually paid into the fund by the taxpayer, and not to the fund's interest or earnings. This measure was referred to the Ways and Means Committee.

Amendment to Reorganization Act

Under the reorganization act of 1949, a reorganization plan must be accepted or rejected as a whole. Congressman Dodd (D., Conn.) in H.R. 6535 would amend this act to allow either house of Congress by a majority vote within the 60-day period to disapprove or eliminate one or more provisions of a presidential reorganization plan. This measure was referred to the Government Operations Committee.

A. M. A. POSTCONVENTION TRIP TO HAWAII

The American Medical Association has arranged for a postconvention trip to the Hawaiian Islands for physicians and their wives following the annual A. M. A. convention in San Francisco next June 21-25. The trip is being handled by Mr. W. M. Moloney, general agent for the Chicago, Burlington & Quincy Railroad, with offices in the Banker's Building, 105 West Adams Street, Chicago. Information and reservation blanks can be obtained from him.

The Hawaiian Holiday Trip starts when the convention ends. The A. M. A. party will leave San Francisco aboard either Pan American Airways Strato Clippers or United Air Lines Stratocruisers at 11:45 on the night of Friday, June 25. Both Pan American and United have offered luxurious accommodations to the party, with arrival in Honolulu on Saturday morning, June 26. The party will stay at the Royal Hawaiian Hotel on Waikiki Beach. The return trip will begin at 4:00 p. m., July 3, aboard the S. S. Lurline, with arrival in Los Angeles on July 8. The party will spend four and a half days on this palatial ship, which is operated by the Matson Lines. The entire trip will require 13 days.

Prepared by the Washington Office of the American Medical Association.

MEDICAL NEWS

ARIZONA

Hospital News.—On recommendation of the Maricopa County Medical Society, Dr. Charles Kalil has been appointed medical director of the Maricopa County General Hospital and Clinics, Phoenix. Dr. Kalil, who served his internship at Grady Memorial Hospital in Atlanta, Ga., was a captain in the U. S. Army Medical Corps during World War II.

Medical Examiners Appointed.—Gov. Howard Pyle has appointed Drs. O. Jocevious Farness, Tucson, Maurice R. Richter, Phoenix, and Harry T. Southworth, Prescott, members of the Arizona State Board of Medical Examiners, each for a term of three years. Drs. Carl H. Gans, Morenci, and Abe I. Podolsky, Yuma, incumbents, complete the membership.

CONNECTICUT

Fall Lecture Series.—The program committee of the Hartford Medical Society announces the following fall series of lectures, which will be held in the Hunt Memorial Building, 38 Prospect St., Hartford, at 8:30 p. m. on the dates specified. All physicians are cordially invited.

Oct. 5, George Crile, Cleveland, Medical Versus Surgical Treatment of Thyrotoxicosis.
Oct. 19, Elliott P. Joslin, Boston, Clinical Application of Statistical Studies in Diabetes.
Nov. 2, Emil Novak, Baltimore, Female Sex Hormones.
Nov. 16, Herrman L. Blumgart, Boston, Angina Pectoris and Its Treatment.
Dec. 7, Charles P. Bailey, Philadelphia, Criteria and Results of Cardiac Surgery in Children.
Dec. 21, Mr. Cyril Coleman, Hartford, Legal Aspects of Medical Practice.

Personal.—Dr. Frank L. Phillips, New Haven, was given a farewell reception by his associates on the occasion of his retirement from the department of university health at Yale University, New Haven, after 32 years of service.——Dr. Max Caplan has been appointed assistant clinical professor of medicine at Yale University School of Medicine. Formerly chief of medicine at the Meriden Hospital, he retains the position of senior attending physician.——Dr. William J. H. Fischer, who has practiced in Milford for 41 years, has been selected as Milford's man of the year by Devon Post 7788, Veterans of Foreign Wars, "for his courageous leadership in providing more adequate hospital facilities for Milford."——Dr. Ernest Rosenthal, Hartford, has been appointed to the staff of the section of ophthalmology, Yale University School of Medicine. He will head the division of eye photography that will record unusual external and fundus eye pathology.

ILLINOIS

Directory of Mental Health Resources.—The Illinois Society for Mental Health announces publication of a new edition of the "Directory of Mental Health Resources in Illinois." This 84 page booklet includes descriptive listings of general hospitals with psychiatric units, guidance and counseling services, and outpatient clinics; private sanitariums; public hospitals; residential treatment centers for children; rest homes for mental patients; and day and residential schools for the mentally retarded. It defines the mental health programs of administrative and coordinating agencies throughout the state of Illinois. The directory may be obtained for $1.50 from the Illinois Society for Mental Health, 123 W. Madison St., Chicago 2.

Chicago

Chemical Research on Cancer.—At its annual meeting in the Conrad Hilton Hotel, the week of Sept. 6, the American Chemical Society will present recent chemical cancer research. Symposiums will be held on "Chemical Factors Affecting Cellular Growth" and "Biological Approaches to Viral Chemotherapy." Reports on antituberculosis agents, compounds to control high blood pressure, local anesthetics, and antispasmodics also are scheduled by the medicinal division. Dr. Leon O. Jacobson, director of the Argonne Cancer Research Hospital, Chicago, will survey "Objectives in Medical Use of Radioisotopes and High Energy Radiation," at a divisional luncheon on Wednesday. Dr. Albert Tannenbaum, director of the department of cancer research, Medical Research Institute, Michael Reese Hospital, will read a paper on "Nutritional Factors Affecting the Growth of Neoplasms." Others who will participate in the presentations include Drs. John H. Heller, New Haven, Conn., I. William McLean Jr., Detroit, and Laurella McClelland, Rahway, N. J.

IOWA

General Practitioners Meet in Des Moines.—The annual meeting of the Iowa Academy of General Practice will be held at the Hotel Savery, Des Moines, Sept. 24-25, under the presidency of Dr. Joseph G. Fellows, Ames. A symposium on peripheral vascular disease will be presented Thursday morning by Drs. Maurice T. Bates and Emmet T. Scales, Des Moines. At 2 p. m. Dr. Norman B. Nelson, dean, State University of Iowa College of Medicine, Iowa City, will deliver an address. Friday will be devoted to a symposium on peptic ulcer, presented by the following members of the faculty of the University of Minnesota Medical School, Minneapolis: Drs. F. John Lewis, James G. Myhre, Clarence K. Aldrich, and Charles M. Nice. Dr. F. Tulley Hallam, medical director, Bankers Life Co., Des Moines, will address the luncheon meeting on "Life Insurance Examinations."

LOUISIANA

Dr. Holbrook Retires.—Dr. Charles S. Holbrook, professor of clinical psychiatry in the Tulane University of Louisiana School of Medicine, New Orleans, retired from the faculty July 1, after an affiliation of 33 years. Dr. Holbrook was formerly assistant superintendent of the East Louisiana State Hospital at Jackson and since 1923 has served as head of the neuropsychiatric clinic at Touro Infirmary, New Orleans. He is consultant in neuropsychiatry at Flint-Goodrich Hospital of Dillard University and a member of the senior staff at De Paul Sanitarium, New Orleans.

MINNESOTA

Dr. Wells Honored.—Dr. Arthur H. Wells, Duluth, has been awarded the American Cancer Society's medal for Minnesota's 1953 "Man of the Year" in cancer control. Formerly president of the Minnesota division, he has served also on its board of directors for eight years. Dr. Wells is chairman of the cancer committee of the Minnesota State Medical Society. He was recently selected as editor of *Minnesota Medicine.*

Multiple Sclerosis Diagnostic Clinic.—The University of Minnesota Medical School, Minneapolis, announces the opening of a diagnostic clinic for multiple sclerosis at the University of Minnesota Hospitals under the supervision of the division of neurology, with Dr. Charles Van Buskirk, assistant professor of neurology, in charge. Patients, referred by their family physicians, will go by appointment directly to the multiple sclerosis clinics and, when necessary, will be admitted to the hospital for special studies. After a preliminary survey, most patients will be sent back to their family physicians with recommendations.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

Personal.—Dr. E. Mendelssohn Jones, chief, surgical division, the Ancker Hospital, St. Paul, since 1948, was recently elected chief emeritus of the section. Dr. Jones, who is a past president of the Ramsey County Medical Society, the Minnesota State Medical Association, and the Minnesota Academy of Medicine, was recently elected secretary of the state board of medical examiners.——Dr. Edgar E. Heller, Mankato, has received an award for meritorious service in Korea. The citation reads, in part, ". . . As commanding officer and medical officer of three widely separated medical detachments, Lieutenant Heller traveled many miles over rough terrain to carry out his assignment in the most effective possible manner. Untrained in Army administrative routine, he nevertheless devised methods which enabled him to supervise the operation of the three detachments with great efficiency. . . ."

MISSOURI

Dr. Teachenor Honored.—Dr. Frank R. Teachenor, Kansas City, a past president of the Jackson County Medical Society, has received the society's merit award with gold key in recognition of "his scientific work in neurosurgery and long service to his profession." Dr. Teachenor, clinical professor of surgery at the University of Kansas School of Medicine, Kansas City, Kan., has practiced medicine for 42 years. In 1939, the American Legion of Kansas City cited him for his efforts in the rehabilitation of crippled children. In 1946, he served as president of the Harvey Cushing Society.

NEW YORK

Society News.—The Nassau Pediatric Society recently named Dr. Martin J. Glynn, Rockville Centre, president, and re-elected Dr. David J. Posner, Levittown, secretary. Meetings will be held at the Garden City Hotel, 7th and Park Ave., Garden City, L. I., on the second Monday of October and December, 1953, and February, April, and June, 1954, at 7:30 p. m.

State Forms Health Research Corporation.—The New York State Department of Health, Albany, announces the organization of Health Research, Inc., a nonprofit corporation to promote research in the cause and treatment of diseases. The corporation will assist in developing the research facilities of the state and local health departments by means of grants given for research in any specific disease field. The new organization enables persons or corporations wishing to assist in financing specific research projects conducted by the state to give money solely for this purpose. Directors of the new corporation include Drs. Hollis S. Ingraham, deputy state health commissioner; Morton L. Levin, assistant commissioner for medical services; Gilbert J. Dalldorf, assistant commissioner for laboratories and research; George E. Moore, director of the Roswell Park Memorial Institute, Buffalo; and Mr. John P. Coffey, assistant director of the office of business administration.

New York City

First Harvey Lecture.—Claude Fromageot, professor of biological chemistry, faculty of sciences, University of Paris, France, will deliver the first Harvey lecture of the 1953-1954 series at the New York Academy of Medicine, Sept. 24, on "Metabolism of Sulfur and Its Relations to General Metabolism."

Personal.—Dr. Thomas D. Dublin, executive director of the National Health Council since September, 1948, has resigned as of Oct. 1.——Dr. Michael G. Mulinos, associate professor of physiology and pharmacology, New York Medical College (Flower and Fifth Avenue Hospitals) has been appointed medical director for Commercial Solvents Corporation Pharmaceuticals.——Dr. Desmond Slevin has joined the medical department of Winthrop-Stearns, Inc., as associate medical director. Born in Dublin, Eire, Dr. Slevin came to the United States in 1950 and has served as resident physician at Manhasset Medical Center Hospital and as resident in psychiatry at Central Islip (N. Y.) State Hospital.——Dr. James W. Smith, clinical professor of ophthalmology, Post-Graduate Medical School of the New York-Bellevue Medical Center, has been elected president of the medical advisory board at the Hospital for Joint Diseases.

Damon Runyon Cancer Grants.—A continuing grant of $81,680 to the New York University-Bellevue Medical Center for a study under the direction of Norton Nelson, Ph.D., associate professor of industrial medicine, to determine the effect of environment on cancer of the respiratory system was the principal allocation among $179,830 in June grants made by the Damon Runyon Memorial Fund for Cancer Research. Fellowships totaling $16,700 were approved for four research scientists engaged in various projects of cancer study. These grants brought the total amount distributed in research to $6,921,856. This sum in the last seven years has been allocated in 368 institutional grants and 249 fellowships in 166 institutions, in 46 states, the District of Columbia, and 14 foreign countries.

OHIO

Reappoint Dr. Porterfield State Health Director.—The Ohio senate has confirmed Gov. Frank J. Lausche's appointment of Dr. John D. Porterfield III, Columbus, as director of the Ohio Department of Health for a second term of five years. Dr. Porterfield was commissioned in the U. S. Public Health Service in June, 1939. He spent 14 months in the Caribbean area serving as U. S. P. H. S. venereal disease consultant and director at the School of Tropical Medicine, San Juan, Puerto Rico, and was released from active duty with the U. S. P. H. S. to accept his present position.

PENNSYLVANIA

Joint Meeting of Pathologists.—A joint meeting of the Middle Eastern District, College of American Pathologists, and the Pennsylvania Association of Clinical Pathologists will be held at the Roosevelt Hotel, Pittsburgh, Sept. 18-19. Dr. James B. Arey, Philadelphia, will conduct a slide seminar on "Tumors of Children." Participants in a panel discussion on "The County Health Unit" include Drs. Thomas W. McCreary, Rochester; E. E. Aegerter, Frederick W. Sunderman, and Robert C. Horn Jr., Philadelphia; and Frank J. Dixon Jr., Robert C. Grauer, and Louis Goodman, Pittsburgh.

Philadelphia

Appoint Professor of Occupational Medicine.—Dr. F. Benedict Lanahan, medical director for the Electric Storage Battery Company, has been appointed professor of occupational medicine at the Woman's Medical College of Pennsylvania. He was previously assistant plant physician for E. I. duPont de Nemours and Company in Arlington, N. J., and medical director for Hilton-David Chemical Corporation and Davidson Chemical Corporation, Cincinnati. Dr. Lanahan, who has held teaching posts at Jefferson Medical College of Philadelphia, St. Joseph's College, and the University of Cincinnati College of Medicine, is past chairman of the industrial medicine section, Philadelphia County Medical Society; past president of the Philadelphia section, American Industrial Hygiene Association; president of Philadelphia Industrial Medical Association; and a member of the medical advisory board of the National Association of Manufacturers.

European Tour.—Dr. Stuart Mudd, professor of microbiology, and Dr. Edward D. Delamater, research professor of dermatology and microbiology, University of Pennsylvania School of Medicine, are in Europe attending, in Nice, France, the International Union of Biological Sciences, of which Dr. Mudd is American secretary; the International Congress of Genetics, at Bellagio, Italy; and the International Congress of Microbiology in Rome, Italy. At the International Congress of Genetics, Dr. Delamater was chairman of the section on bacterial chromosomes and presented a paper on the subject. At the Congress of Microbiology, he presented a paper. Drs. Mudd and Delamater collaborated in the presentation of evidence lately obtained relative to the action of the new antibiotic drugs within the structure of the human cell. Dr. Delamater will remain in Europe until mid-November visiting medical centers to study laboratory methods used in investigations of cytogenetics.

RHODE ISLAND

Fiske Fund Contest.—A prize of $250 is offered by the trustees of the Fiske Fund of the Rhode Island Medical Society for the best dissertation on "Recent Advances in Cardiac Surgery." The entry will be particularly graded on the basis of original work by the author and his observation of patients. It must be typewritten and double spaced on standard typewriter paper and should not exceed 10,000 words. Entries, inscribed with motto and accompanied by a sealed envelop bearing the same motto and containing the contestant's name and address, should be sent on or before Dec. 2 to the secretary to the trustees, John E. Farrell, Sc.D., 106 Francis St., Providence 3.

TENNESSEE

Medical Assembly in Chattanooga.—The Tennessee Valley Medical Assembly will convene under the sponsorship of the Chattanooga-Hamilton County Medical Society at Read House, Chattanooga, Sept. 28-29. Leo Brown, Chicago, A. M. A. Director of Public Relations will address the banquet Monday on "Medicine's Golden Opportunity." Speakers at the scientific sessions include:

Philip Thorek, Chicago, Acute Abdomen.
Richard W. TeLinde, Baltimore, (1) Carcinoma of the Cervix. (2) Pelvic Endometriosis.
Paul D. White, Boston, (1) Hypertensive Heart Disease a Generation Ago and Now. (2) Notes on Coronary Heart Diseases.
Charles W. Mayo, Rochester, Minn., Alex Stewart Memorial Lecture, Colon Surgery.
Robert B. Lawson, Winston-Salem, N. C., To Treat or Not to Treat.
John R. Heller, Bethesda, Md., Pathogenesis of Carcinoma.
John B. Youmans, Nashville, Anemia and Nutrition.
Richard B. Cattell, Boston, (1) Advances in Pancreatic Surgery. (2) Surgical Treatment of Gastric and Duodenal Ulcers.
H. Earle Conwell, Birmingham, Ala., Do's and Don't's in Fracture Treatment.
George Crile Jr., Cleveland, (1) Diseases of the Thyroid Gland. (2) Bleeding Esophageal Varices.

For information write: Tennessee Valley Medical Assembly, 612 Medical Arts Bldg., Chattanooga.

TEXAS

Industrial Health Conference.—The Texas Heart Association and the Houston District Chapter are cooperating with other groups in sponsoring an Industrial Health Conference, Oct. 1-3. The luncheon period and afternoon sessions on Thursday will be devoted to a program on "The Heart in Industry." Luncheon speakers will be Dr. Robert L. King, Seattle, president of the American Heart Association, who will discuss "What the American Heart Association Offers Industry," and Dr. Harold M. Marvin of Yale University School of Medicine, New Haven, Conn., who will speak on "The Executive and His Heart Attack." Dr. Sidney Schnur, Houston, will preside at the afternoon panel meeting for which the following program has been announced:

Harold M. Marvin, New Haven, The Physician's Viewpoint.
James J. Healy, How the Worker Views It.
Mr. Albert Jones, According to the Medicolegal Angle.
Mr. Stokes Marshall, As Viewed by the Personnel Director.
E. Ghent Graves, A Problem for the Insurance Carrier.

WEST VIRGINIA

Society News.—A recent meeting of the West Virginia Academy of General Practice elected Drs. Jacob C. Huffman, Buckhannon, president; Clark K. Sleeth, Morgantown, vice-president; and Halvard Wanger, Shepherdstown, secretary-treasurer (reelected).——The West Virginia Diabetes Association, recently accepted as a new section by the West Virginia State Medical Association, has elected the following officers: president, Dr. Richard N. O'Dell, Charleston; president-elect, Dr. John H. Gile, Parkersburg; vice-president, Dr. Archie C. Thompson, Elkins; and secretary-treasurer, Dr. Ralph H. Nestmann, Charleston. Drs. Marion F. Jarrett, Charleston, Halvard Wanger, Shepherdstown, and Oliver H. Brundage, Parkersburg, were elected members of the board of directors. ——The West Virginia *Pediatrics Society* is being organized within the framework of the West Virginia State Medical Association's section on pediatrics. Plans call for the sponsorship of two scientific sessions annually, one in the northern and the other in the southern part of the state. Beside pediatricians, the new society will include general practitioners interested in pediatrics. Dr. Russell C. Bond, Wheeling, is chairman of the section on pediatrics, and Dr. Helen B. Fraser, Charleston, is secretary.——The West Virginia Association of Pathologists recently elected Drs. Elmer E. Myers, Philippi, president; Peter P. Ladewig, Montgomery, president-elect; and Richard C. Neale, Bluefield, secretary-treasurer. ——The West Virginia Society of Anesthesiologists named Drs. Lester D. Norris, Fairmont, president; Newman H. Newhouse, Charleston, vice-president; and John F. Morris, Huntington, secretary-treasurer.——The following officers were elected by the West Virginia Obstetrical and Gynecological Society: Drs. Everett W. McCauley, Bluefield, president; Ulysses G. McClure, Charleston, vice-president; and Angelo J. Villani, Welch, secretary-treasurer.

WISCONSIN

Medical Art Exhibit at Milwaukee.—An art exhibition entitled "The Story of Medicine in Art" will be held at the Milwaukee Art Institute Sept. 11 to Oct. 25, under the cosponsorship of the Wisconsin State Medical Association, Milwaukee County Medical Society, and the Boston Store of Milwaukee. The exhibit will include paintings, drawings, graphics, sculpture, manuscripts, letters, medals, stamps, and other art objects related to medicine. Exhibits are being sent by numerous museums, private collectors, and artists.

Chest Physicians' Meeting.—The Wisconsin Chapter of the American College of Chest Physicians will hold its annual meeting at the Hotel Schroeder, Milwaukee, Oct. 4. The following program will be presented at 2 p. m.:

Electrocardiographic Problems in Daily Practice, George A. Hellmuth, Chicago.
Granulomatous Lung Disease, Joseph M. Lubitz, Milwaukee.
Surgical Treatment of Mitral and Aortic Stenosis (motion pictures), Alfred Goldman, Los Angeles.
Inhalation of Dihydrostreptomycin Dust in Treatment of Diseases of the Respiratory Tract, Mary Karp, et al., Chicago.
Diseases of the Trachea (motion pictures), Kenneth C. Johnston, Chicago.

Dr. Edgar Mayer, New York, will speak on "Palliative Treatment of Inoperable Bronchogenic Carcinoma" at the dinner, 6 p. m., in the Club Rooms, 3rd floor.

GENERAL

Biological Photographic Meeting.—The annual meeting of the Biological Photographic Association will convene at the Hotel Statler, Los Angeles, Aug. 31 to Sept. 3. The Monday afternoon meeting will be held at the Walt Disney Studios, 1:15, where luncheon will be followed by a demonstration and lecture on animation and the showing of films. The evening session will include the projection of color slides. The program includes:

David S. Ruhe, Chicago, Clinical Photographer's Role in Production of Short Short Medical Films.
Ernest Rosenthal, New Haven, Conn., Bronchovascular Anatomy.
Philip D. Bonnet, Boston, Hospitals and Medical Photography.
John M. Langton, Glendale, Calif., Anterior Segment Photography with Speed Flash.

Cruise Congress to South America.—The Pan American Medical Association announces that its ninth International Cruise Congress to South America and the West Indies will be held on board the S. S. Nieuw Amsterdam, sailing from New York Jan. 6 and returning Jan. 22, 1954. Scientific sessions and panel discussions will be held at sea and in port. Ports to be visited include Caracas, Venezuela; Curaçao; St. Thomas, Virgin Islands; San Juan, Puerto Rico; Cuidad Trujillo, Dominican Republic; and Havana, Cuba. The American Express Company, which will handle all reservations subject to the approval of the association, requires an initial deposit of $200 for each passenger ($35 of which will be deducted for the Pan American Medical Association to cover the registration fee for each passenger).

Pan American Medical Women's Alliance.—The congress of the Pan American Medical Women's Alliance will convene at the Beekman Towers Hotel, 1st Ave. and 49th St., New York, Sept. 24 to Oct. 1. Scientific sessions will be followed by round table luncheon discussions with lecturers speaking Spanish and English. Through the sponsorship of New York medical women, those interested in a special field will have opportunities to attend clinics of their choice. The Medical Women's Association of New York, serving as host, has planned a program of tours of the New York Hospital-Cornell Medical Center and Columbia University-Presbyterian Medical Center, a boat trip around Manhattan Island, tour and luncheon at the United Nations, visits to Radio City and the Empire State Building, and a drive to Hyde Park, N. Y. Registration fee is $10; registration chairman, Dr. Ina A. Marsh, 140 Linwood Ave., Buffalo 9.

Grant to Multiple Sclerosis Society.—A grant of $34,354 has been awarded to the National Multiple Sclerosis Society by the Kresge Foundation of Detroit in memory of its former president, the late Paul W. Voorhies. It is specified that the grant shall further the multiple sclerosis research project at the New York University-Bellevue Medical Center, to which the society has already allocated over $100,000 of its research funds. The grant will enable the staff to continue research that involves: (1) further investigation of visual disturbances produced by abnormal eye movements in patients with multiple sclerosis; search for drugs that will alter or abolish these disturbances, (2) study of drugs aimed at alleviating muscle spasticity, (3) study of adhesive properties of blood platelets and its reflection of activity in multiple sclerosis, (4) study of cerebral spinal fluids of patients with multiple sclerosis and other neurological disorders, and (5) new techniques and modes of therapy evaluated for the study of multiple sclerosis and other demyelinating diseases.

Medical Writers Meeting.—The American Medical Writers' Association will hold its 10th annual meeting at the Elks Club, Springfield, Ill., Sept. 23, under the presidency of Dr. Lewis J. Moorman, Oklahoma City. The session will open with the following symposium on medical writing:

Julius Jensen, St. Louis, Writing for the General Practitioner.
Stewart G. Wolf, Oklahoma City, Writing for the Medical Specialties.
Theodore R. Van Dellen, Chicago, Writing for the Public by the M.D.

After discussion by Drs. Richard M. Hewitt, Rochester, Minn., and Lee D. Van Antwerp, Skokie, Ill., there will be a presentation on medical writing for medical students by Dr. Walter Reginald Bett, London, England, who will speak on "The Desirability and Methods of Teaching Medical Writing to Senior Medical Students," and Dr. Dean F. Smiley, Chicago, who will discuss "What Medical Schools Can Do to Improve Medical Writing." In the afternoon there will be a symposium on medical writing as seen by a medical editor, a director of a university press, a layman, a medical illustrator, and an undergraduate student of medicine. At the banquet in the Hotel Abraham Lincoln, Dr. Bett will present "A Little Judicious Levity."

American Hospital Association Meeting.—The American Hospital Association will hold its annual convention in San Francisco, Aug. 31 to Sept. 3, under the presidency of Dr. Edwin L. Crosby, Chicago, who will deliver the opening address on Monday, 2:15 p. m., in the Civic Auditorium. The theme of this session will be "Marshaling the Forces in the Hospital." Dr. Crosby's talk will be followed by an address on "One of Our Greatest Resources" by the Hon. Oveta Culp Hobby, secretary, Department of Health, Education, and Welfare, Washington, D. C. Dr. Lewis A. Alesen, Los Angeles, will serve as moderator for a panel discussion "Where Should We Focus Our Concern?" in which Dr. Stafford L. Warren, Los Angeles, will speak for the medical staff. Drs. E. Dwight Barnett, New York, and Robin C. Buerki, Detroit, will participate in a discussion on "The Development of a Solid Financial Base" in development of the Tuesday morning theme, "Factors Affecting Hospital Care." Tuesday afternoon will be devoted to a presentation entitled "The Community Needs a Hospital—How We Organized Our Community for Support," a case history of the Santa Monica (Calif.) Hospital. Serving on the Santa Monica panel will be Drs. Adolph W. Kosky, William C. Bradbury, and David H. Sprong Jr. Wednesday morning "Aids to Help Make Our Jobs Easier" will be presented. Dr. Harry E. Peters, Oakland, will speak on medical staff-trustee relationships, and Dr. Charles U. Letourneau, Chicago, will participate in a panel discussion entitled "These Aids Are Available from the American Hospital Association." Dr. Anthony J. J. Rourke, San Francisco, will be master of ceremonies at a sisters luncheon at the Palace Hotel, Wednesday, 12:30 p. m. At the annual banquet at the Palace Hotel, Thursday, the award of merit will be presented to Dr. Basil C. MacLean, director of Strong Memorial Hospital, Rochester, N. Y. Entertainment will be furnished by Edgar Bergen and Charlie McCarthy.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

Area	Aug. 15, 1953 Paralytic Type	Aug. 15, 1953 Total Cases Reported	Aug. 16, 1952 Total
New England States			
Maine	15	23	14
New Hampshire	..	5	2
Vermont	5	5	1
	11	22	32
	7	10	6
	3	15	48
Middle Atlantic States			
New York	39	169	184
New Jersey	25	46	61
Pennsylvania	..	63	95
East North Central States			
Ohio	39	166	204
Indiana	..	40	77
Illinois	58	161	221
Michigan	57	148	244
Wisconsin	..	41	143
West North Central States			
Minnesota	47	172	206
Iowa	15	49	187
Missouri	12	55	38
North Dakota	1	14	19
South Dakota	..	6	18
Nebraska	3	14	114
Kansas	..	32	79
South Atlantic States			
Delaware	..	3	5
	17	26	5
	3	5	17
Virginia	14	52	53
West Virginia	22	38	34
North Carolina	11	55	20
South Carolina	3	8	6
Georgia	4	14	46
Florida	9	34	22
East South Central States			
Kentucky	5	21	167
	13	38	23
	9	19	8
	..	21	29
West South Central States			
	13	19	23
	5	11	60
	12	40	68
Texas	15	70	214
Mountain States			
Montana	7	10	15
Idaho	..	3	14
	..	1	5
	3	8	36
	..	4	22
	10	43	17
Utah	..	5	7
Nevada	..	..	3
Pacific States			
Washington	..	13	70
Oregon	4	10	18
California	80	170	105
Territories and Possessions			
Alaska	2	2	..
Hawaii	..	1	2
Puerto Rico	..	..	1
Total	598	2,000	3,108

CANADA

International Physiological Congress.—The 19th International Physiological Congress will be held in Montreal, Aug. 31 to Sept. 4, under the presidency of Dr. Charles H. Best, Toronto. Special symposiums, most of which will be held at the Université de Montréal, include: hemodynamics in small vessels, physiology of cold, mechanism of formation of the thyroid hormone, metabolic influence of insulin, and reflexes from the cardiac and pulmonary areas. The congress will be followed by a pharmacologists' meeting, sponsored jointly by the Canadian Physiological Society and the International Pharmacological Committee at McGill University, Sept. 5. The scientific program will consist of symposiums on "The Pharmacology of Renal Tubular Mechanisms" and "The Actions of Drugs at Autonomic Ganglia."

LATIN AMERICA

Meeting on Radiology.—The fourth Brazilian Week on Radiology will be held in Curitiba, Parana, Brazil, Sept. 27 to Oct. 3 under the auspices of the state government. Official topics include "Roentgen Diagnosis in Nontuberculous Pneumopathies," "Roentgen Changes of Bones in Endocrinopathies," "Roentgen Therapy of Breast Cancer," and "Roentgen Therapy in Dermatology." Information may be obtained from the Secretary General, Rua Candido Lopes 40, 1° Curitiba, Parana, Brazil.

FOREIGN

Meeting of Sports Physicians.—The health commission of the Austrian United Nations Associations announces the International Congress for Sports Physicians at Obertraun, Hallstättersee, Sept. 11-13.

Society for the Study of Biological Rhythms.—The fourth meeting of the International Society for the Study of Biological Rhythms will be held at Basel, Switzerland, Sept. 18-19. Among the 44 papers to be presented are: "Experimental Production of Cycles in Behavior and Physiology of Animals," Curt P. Richter, Ph.D., Baltimore, and "Recent Study on the Development of the Diurnal (24-Hour) Sleep-Wakefulness Rhythm in the Infant," Nathaniel Kleitman, Ph.D., and Mr. Theodore G. Engelmann, Chicago.

International Neurological Congress.—The fifth International Neurological Congress will be held in Lisbon, Portugal, Sept. 7-12. Topics for discussion include vascular diseases of the brain, parietal lobe, and metabolic diseases of the brain. Dr. Seymour S. Kety, Bethesda, Md., will present a paper on "Physiopathology of Cerebral Circulation in the Vascular Diseases of the Brain." A meeting in commemoration of the birth of Ramón y Cajal. founder of the Spanish School of Neurologists and a Nobel Laureate in 1906, will be held in Madrid immediately after the congress (Sept. 13-14). Dr. Henry Alsop Riley, New York, is chairman of the committee for the United States, and Dr. H. Houston Merritt, New York, is secretary.

The Association International for Multiple Sclerosis of the National Multiple Sclerosis Society will hold its meeting simultaneously with that of the International Neurological Congress and will use the same headquarters, the University Hospital of Lisbon. There will be a cocktail party and a dinner at the Club de Tenis de Lisboa, Parque do Monsanto, Sept. 6, 7:30 p. m.

International Society of Surgery.—The 15th congress of the International Society of Surgery will be held Sept. 14-20 in the Nouvel Hôpital de la Faculté, Lisbon, Portugal. Participating in the discussion on regeneration of tissues will be Drs. Valy Menkin, Philadelphia, Edward L. Howes and Alexander Brunschwig, New York, Samuel C. Harvey, New Haven, Conn., Henry G. Schwartz, St. Louis, Glenn H. Algire, Bethesda, Md., Isidor S. Ravdin, Philadelphia, and Charles M. Pomerat, Ph.D., Galveston, Texas. During the Friday morning session devoted to aneurysms, papers will be presented by Drs. Isidore Cohn, New Orleans, Geza deTakats and Conrad L. Pirani, Chicago, Emile F. Holman, San Francisco, and Arthur H. Blakemore, New York. Participating in the discussions will be Drs. Alexander W. Blain, Detroit, Michael E. DeBakey and Denton A. Cooley, Houston, Texas, Frank Gerbode, San Francisco, Howard R. Mahorner, New Orleans, Louis G. Herrmann, Cincinnati, and James C. White, Boston.

Angiologists Meet in Lisbon.—The International Society of Angiology will hold its second congress at the Novo Hospital Escolar, Campo Grande, Lisbon, Portugal, Sept. 18-20 under the presidency of Dr. Emile F. Holman, San Francisco. Friday will be devoted to a symposium on aneurysms in joint session with the International Society of Surgery. A symposium on mitral valve surgery will be held Saturday, and an angiology forum on Sunday. The inaugural session of the society will be held jointly with that of the International Society of Surgery, Sept. 14, 11 a. m., and the executive session will convene Sept. 18 at 2 p. m. Many physicians from the United States are scheduled to participate in the program. These, together with their first presentations, include:

Isidore Cohn, New Orleans, Homage to Professor Rudolph Matas.
Geza deTakats and Conrad L. Pirani, Chicago, Aneurysms: General Considerations.
Emile F. Holman, San Francisco, Fundamental Principles Governing the Care of Traumatic Arteriovenous Aneurysms.
Arthur H. Blakemore, New York, Aneurysms of the Aorta.
Harris B. Shumacker Jr., Indianapolis, Tests for and Means of Improving the Collateral Circulation in Cases of Aneurysms and Arteriovenous Fistulas.
Louis G. Herrmann, Cincinnati, Surgical Obliteration of Popliteal Aneurysms.
James C. White, Boston, Aneurysms of the Aorta.
Howard R. Mahorner and Rowena Spencer, New Orleans, Arterial Shunts: A Technique for Replacing Segments of Large Vessels.
Frank L. Gerbode, San Francisco, Use of Blood Vessel Grafts in the Repair of Major Vessels.
Michael E. DeBakey and Denton A. Cooley, Houston, Treatment of Aneurysms of the Aorta by Resection and Restoration of Continuity With or Without Aortic Graft.
Alexander Blain III, Detroit, Surgical Aspects of Dissecting Aortic Aneurysms.
Elliott S. Hurwitt, New York, Demonstration of the Function of the Mitral Valve (Film).
Charles P. Bailey, Hauck E. Bolton, and M. C. De Almeida, Philadelphia, Indications and Surgical Management of Patients with Mitral Stenosis.
Dwight E. Harken, Boston, Evaluation of Results in Operations for Mitral Stenosis.
George H. Humphreys II and Ralph A. Deterling Jr., New York, Observations on the Etiology of Constrictive Pericarditis.
Saul S. Samuels, New York, A Comparative Study by an Electronic Method of the Vasodilating Effect of Various Drugs.
Henry Haimovici, New York, Experimental Stenosing Arterial Thrombosis: Physiopathologic Considerations.
Edwin J. Wylie, San Francisco, Thromboendarterectomy.
Ormand C. Julian, William J. Grove, and William S. Dye, Chicago, Resection of Aortic Bifurcation with Graft Replacement.
Robert R. Linton, Boston, Surgical Treatment of the Postphlebitic Syndrome with Ulceration of the Lower Extremity.

CORRECTIONS

Effects of HPC and Aspirin on Rheumatic Fever.—In the abstract on this subject on page 1265 of THE JOURNAL July 25, 1953, the term "probenecid" was mistakenly substituted for HPC or 3-hydroxy-2-phenylcinchoninic acid.

Postgraduate Courses.—The courses listed below in THE JOURNAL, June 13, 1953, page 631, were incorrectly credited to Mt. Sinai Hospital, New York, instead of the Montefiore Hospital, New York:

Medicine PM 60—Cardiology I
Medicine PM 62—Cardiology II
Medicine PM 63—Cardiology III
Medicine PM 64—Recent Advances in Diagnosis and Surgical Treatment of Heart Diseases
Medicine PM 66—Hematology
Medicine PM 67—Advanced Hematology
Medicine PM 65—Peripheral Vascular Diseases
Medicine PM 72—Neoplastic Diseases

Hypertension During Transurethral Resection.—In the answer to the query by this title in THE JOURNAL, Aug. 15, 1953, page 1581, the words "sodium chloride" were erroneously inserted in the copy by the manuscript editor after the word "isotonic" and did not appear in the consultant's original copy.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Clinical Session, St. Louis, Dec. 1-4.

1954 Annual Session, San Francisco, June 21-25.

1954 Clinical Session, Miami, Florida, Nov. 30-Dec. 3.

1955 Annual Session, Atlantic City, N. J., June 6-10.

1955 Clinical Session, Boston, Nov. 29-Dec. 2.

National Conference on Physicians and Schools, Moraine-on-the-Lake Hotel, Highland Park, Ill., Sept. 30-Oct. 2. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago 10, Director.

Public Relations Institute, Drake Hotel, Chicago, Sept. 2-3. Mr. Leo E. Brown, 535 North Dearborn St., Chicago 10, Director.

American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago, Oct. 12-16. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

American Academy of Pediatrics, Municipal Auditorium, Miami, Fla., Oct. 6-9. Dr. E. H. Christopherson; 610 Church St., Evanston, Ill., Secretary.

American Association of Medical Clinics, Congress Hotel, Chicago, Oct. 9-11. Dr. Edwin P. Jordan, P. O. Box 114, Charlottesville, Va., Executive Director.

American Association of Medical Record Librarians, Palace Hotel, San Francisco, Oct. 5-9. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, The Homestead, Hot Springs, Va., Sept. 10-12. Dr. William F. Mengert, 2211 Oak Lawn Ave., Dallas, Texas, Secretary.

American Association for the Surgery of Trauma, Drake Hotel, Chicago, Oct. 1-3. Dr. James K. Stack, 700 North Michigan Blvd., Chicago, Secretary.

American College of Surgeons, Conrad Hilton Hotel, Chicago, Oct. 5-9 Dr. Michael L. Mason, 40 East Erie St., Chicago, Secretary.

American Congress of Physical Medicine, Palmer House, Chicago, Aug. 31-Sept. 4. Dr. Walter J. Zeiter, 30 North Michigan Ave., Chicago 2, Executive Director.

American Dietetic Association, Los Angeles, Aug. 24-28. Miss Ruth M. Yakel, 620 N. Michigan Ave., Chicago 11, Executive Secretary.

American Fracture Association, Mission Inn, Riverside, Calif., Oct. 12-15 Dr. H. W. Wellmerling, 120 S. LaSalle St., Chicago 3, Secretary.

American Hospital Association, San Francisco, Aug. 31-Sept. 3. Mr. George Bugbee, 18 East Division St., Chicago 11, Executive Director.

American Medical Writers' Association, Elk's Club, Springfield, Ill., Sept. 23. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

American Roentgen Ray Society, Netherland Plaza, Cincinnati, Sept. 29-Oct. 2. Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretary.

American Society of Anesthesiologists, Olympic Hotel, Seattle, Oct. 6-9. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago, Secretary.

American Society of Clinical Pathologists, Drake Hotel, Chicago, Oct. 12-16. Dr. Clyde G. Culbertson, 1040 W. Michigan St., Indianapolis, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Fall Meeting, Yale University, New Haven, Conn., Sept. 7-9. Dr. Carl C. Pfeiffer, 1853 West Polk St., Chicago 12, Secretary.

Association of Life Insurance Medical Directors of America, Hotel Statler, New York, Oct. 14-16. Dr. Henry B. Kirkland, P. O. Box 594, Newark 1, N. J., Secretary.

Association of Medical Illustrators, Sheraton Hotel, Baltimore, Oct. 5-7. Miss Evelyn J. Erickson, 1512 St. Antoine St., Detroit 26, Secretary.

Biological Photographic Association, Hotel Statler, Los Angeles, Aug. 31-Sept. 3. Miss Jane H. Waters, 533 West 57th St., New York 19, Secretary.

Central Neuropsychiatric Association, Claypool Hotel, Indianapolis, Oct. 15-17. Dr. Hamilton Ford, 112 North Blvd., Galveston, Texas, Secretary.

College of American Pathologists, Drake Hotel, Chicago, Oct. 12-16. Dr. Harry P. Smith, 203 N. Wabash Ave., Chicago 1, Secretary.

Colorado State Medical Society, Shirley-Savoy Hotel, Denver, Sept. 29-Oct. 2. Mr. Harvey T. Stethman, 835 Republic Bldg., Denver 2, Executive Secretary.

Delaware, Medical Society of, Hotel du Pont, Wilmington, Oct. 12-14. Dr. Andrew M. Gehret, 822 North American Bldg., Secretary.

District of Columbia, Medical Society of the, Hotel Statler, Washington, Oct. 5-7. Mr. Theodore Wiprud, 1718 M St. N.W., Washington 6, Secretary.

Gerontological Society, Mark Hopkins Hotel, San Francisco, Aug. 25-27. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

Gulf Coast Clinical Society, Admiral Semmes Hotel, Mobile, Ala., Oct. 15-16. Dr. William J. Atkinson Jr., 1217 Government St., Mobile 20, Ala., Secretary.

Gulf Coast Conference on Industrial Health, Shamrock Hotel, Houston, Tex., Oct. 1-3. Dr. Sidney Schnur, 411 Medical Arts Bldg., Houston 2, Tex., Vice Chairman.

Kansas City Southwest Clinical Society, Kansas City, Mo., Sept. 28-Oct. 1. Dr. W. H. Algie, 825 North 7th Street, Kansas City, Kans., Secretary.

Kentucky State Medical Association, Brown Hotel, Louisville, Sept. 22-24. Dr. Bruce Underwood, 620 South Third St., Louisville 2, Secretary.

Michigan State Medical Society, Pantlind Hotel and Civic Auditorium, Grand Rapids, Sept. 23-25. Dr. L. Fernald Foster, 606 Townsend St., Lansing 15, Secretary.

Mississippi Valley Medical Society, Springfield, Ill., Sept. 23-25. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Montana Medical Association, Northern Hotel, Billings, Sept. 17-20. Mr. L. R. Hegland, 104 North Broadway, Billings, Executive Secretary.

National Gastroenterological Association, Hotel Biltmore, Los Angeles, Oct. 12-17. Dr. A. Xerxes Rossien, 1819 Broadway, New York 23, Secretary.

Neurosurgical Society of America, The Broadmoor, Colorado Springs, Colo., Sept. 23-27. Dr. C. D. Hawkes, 22 North Manassas St., Memphis 5, Tenn., Secretary.

Nevada State Medical Association, Carter Hotel, Elko, Sept. 24-26. Dr. William A. O'Brien III, 505 Chestnut St., Reno, Secretary.

New Hampshire Medical Society, Equinox House, Manchester, Vt., Oct. 4-6. Dr. Deering G. Smith, 44 Chester St., Nashua, Secretary.

Northern Minnesota Medical Association, Fergus Falls, Aug. 28-29. Dr. C. L. Oppegaard, Crookston, Secretary.

North Pacific Society of Internal Medicine, Harrison, B. C., Canada, Sept. 18-19. Dr. Clarence C. Pearson, 1115 Terry Ave., Seattle 1, Wash., Secretary.

North Texas-Southern Oklahoma Fall Clinical Conference, Wichita Falls, Texas, Sept. 16. Dr. C. H. Wilson, 1300 Eighth St., Wichita Falls, Texas, Secretary.

Oregon State Medical Society, Heathman Hotel, Portland, Oct. 14-17. Dr. Charles E. Littlehales, 833 S.W. Eleventh Ave., Portland 5, Secretary.

Pennsylvania, Medical Society of the State of, William Penn Hotel, Pittsburgh, Sept. 21-24. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

Regional Meetings, American College of Physicians:

- North Dakota, Fargo, Sept. 12. Dr. Robert B. Radl, 221 Fifth St., Bismarck, Governor.
- Arkansas-Oklahoma, Tulsa, Okla., Sept. 19. Dr. Wann Langston, 117 North Broadway, Oklahoma City 2, Governor.
- Western New York, Syracuse, Oct. 9. Dr. E. C. Reifenstein, 109 South Warren St., Syracuse 2, Governor.
- Ohio, Dayton, Oct. 9. Dr. Charles A. Doan, Ohio State University College of Medicine, Columbus 10, Governor.
- Montana-Wyoming, Missoula, Mont., Oct. 9-10. Dr. Harold W. Gregg, 127 West Park Street, Butte, Mont., Governor.
- Southeastern—Cuba, Alabama, Florida, Georgia, South Carolina—St. Simons, Sea Island, Ga., Oct. 16-17. Dr. Carter Smith, 384 Peachtree St. N.E., Atlanta 3, Ga., Chairman.

Southwestern Surgical Congress, Hotel Utah, Salt Lake City, Sept. 21-23. Dr. C. R. Rountree, 1227 Classen St., Oklahoma City 3, Secretary.

Tennessee Valley Medical Assembly, Read House Hotel, Chattanooga, Sept. 28-29. Dr. William G. Stephenson, 612 Medical Arts Bldg., Chattanooga 3, President.

U. S. Chapter, International College of Surgeons, Waldorf-Astoria, New York, Sept. 13-17. Dr. Karl Meyer, 1516 Lake Shore Drive, Chicago 10, Secretary.

Utah State Medical Association, Salt Lake City, Sept. 10-12. Dr. Homer E. Smith, 42 South Fifth East St., Salt Lake City 2, Secretary.

Vermont State Medical Society, Equinox House, Manchester, Oct. 4-6. Dr. James P. Hammond, 542 Main St., Bennington, Secretary.

Washington State Medical Association, Olympic Hotel, Seattle, Sept. 13-16. Dr. Bruce Zimmerman, 338 White-Henry-Stuart Bldg., Seattle 1, Secretary.

Western Orthopedic Association, Sun Valley, Idaho, Oct. 5-8. Dr. Forrest L. Flashman, 1301 Spring St., Seattle 4, Secretary.

Wisconsin, State Medical Society of, Hotel Schroeder, Milwaukee, Oct. 5-7. Mr. Charles H. Crownhart, 704 East Gorham St., Madison 3, Secretary.

FOREIGN

Association of Surgeons of Great Britain and Ireland, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

Canadian Medical Association, Vancouver, B. C., Canada, June 18-22, 1954. Dr. T. C. Routley, 135 St. Clair Ave. W., Toronto 5, Ont., Canada, General Secretary.

Congress of International Anesthesia Research Society, Chateau Frontenac, Quebec, Canada, October 26-29. Dr. A. William Friend, 515 Nome Ave., Akron 20, Ohio, Chairman, Program Committee.

Congress of the International Association of Limnology, Cambridge and Windermere, England, Aug. 20-30. For information write: Professor G. C. Hutchinson, Osborn Zoological Laboratory, Yale University, New Haven, Conn., U. S. A.

Congress of the International League Against Rheumatism, Geneva, Switzerland and Aix-les-Bains, France, Aug. 23-29. For information write: Dr. W. Tegner, The London Hospital, London E.1, England.

Congress of the International Society of Angiology, Lisbon, Portugal, Sept. 18-20. Dr. Henry Haimovici, 105 East 90th St., New York 28, N. Y., U. S. A., Secretary.

Congress of the International Society of Surgery, Lisbon, Portugal, Sept. 14-20. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

Interim Meeting, Aero Medical Association, University of Brussels Medical School, Brussels, Belgium, Sept. 24-27. Dr. Andre Allard, Medical Director of SABENA, 145 Rue Royale, Brussels, Belgium, Secretary.

International Cancer Congress, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

International Conference on Thrombosis and Embolism, Basle, Switzerland, July 15-19, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

International Congress of the European Society of Haematology, Amsterdam, Holland, Sept. 8-12. Dr. M. C. Verloop, Maliesingle 15, Utrecht, Holland, Secretary.

International Congress on Genetics, Bellagio, Italy, August 24-31. Prof. C. Barigozzi, Instituto de Genetica, Universita de Milano, 10 via Celoria, Milan, Italy, Secretary.

International Congress on Group Psychotherapy, Toronto, Ont., Canada, Aug. 12-14, 1954. Dr. J. L. Moreno, Room 327, 101 Park Ave., New York 17, N. Y., U. S. A., Director of Organizing Committee.

International Congress of Hippocratic Medicine, Evian, France, Sept. 3-6. Prof. P. Delore, 13, rue Jarente, Lyon, France, Secretary-General.

International Congress of Hydroclimatism and Thalassotherapy, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni Venac 1, Belgrade, Yugoslavia, Secretary General.

International Congress of International College of Surgeons, Sao Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U.S.A., Secretary-General.

International Congress of Logopedics and Phoniatrics, Zurich, Switzerland, Sept. 1-5. Dr. Deso A. Weiss, 115 East 86th St., New York 28, N. Y., U. S. A., General Secretary.

International Congress on Mental Health, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

International Congress of Microbiology, Rome, Italy, Sept 6-12. For information write: Dr. V. Puntoni, Citta Universitaria, Rome, Italy.

International Congress on Obstetrics and Gynecology, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

International Congress of Paediatrics, Havana, Cuba, Oct. 12-17. Prof. Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba, President.

International Congress of Psychology, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

International Congress for Psychotherapy, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

International Congresses of Tropical Medicine and Malaria, Istanbul, Turkey, Aug. 28-Sept. 4. Professor Dr. Ihsan Sükrü Aksel, Tunel Meydam, Beyoglu, Istanbul, Turkey, General Secretary.

International Gerontological Congress, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

International Leprosy Congress, Madrid, Spain, Oct. 3-10. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

International Neurological Congress, Lisbon, Portugal, Sept. 7-12. Prof. Almeida Lima, Avenida do Brazil 53, Lisbon, Portugal, Secretary-General.

International Office of Documentation of Military Medicine, Rome, Italy, Oct. 14-18. Colonel Medecin Prof. A. Campana, Office of the Ministero della Difesa-Esercito, Rome, Italy, Secretary.

International Physiological Congress, Montreal, Canada, Aug. 31-Sept. 4. Dr. A. S. V. Burgen, Dept. of Physiology, McGill University, Montreal, Canada, Secretary.

International Society for the Study of Biological Rhythms, Basle, Switzerland, Sept. 18-19. For information write: Prof. Dr. F. Georgi, Neurologische Universitats-Poliklinik, Socinstrasse 55, Basle, Switzerland.

Journees Medicales, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geofroix, Colombes (Seine) France.

Latin American Congress of Obstetrics and Gynecology, Buenos Aires, Argentina, Oct. 26-31.

Latin American Congress of Otorhinolaryngology, Caracas, Venezuela, Feb. 21-25, 1954. Dr. Victorino Marquez Reveron, Centro Medico, Caracas, Venezuela, Secretary-General.

Pacific Science Congress, Quezon City and Manila, Philippines, Nov. 16-28. Dr. Patrocinio Valenzuela, College of Pharmacy, University of the Philippines, Quezon City, Philippines, Secretary-General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, Mexico, D.F., Mexico, Feb. 28-March 4, 1954.

Pan American Medical Association, International Medical Cruise Congress, S.S. Nieuw Amsterdam, Jan. 6-22, 1954. Dr. Joseph J. Eller, 745 Fifth Avenue, New York 22, N. Y., U. S. A., Executive Director.

Pan American Medical Women's Alliance, Beekman Towers Hotel, New York, N. Y., Sept. 24-Oct. 1. Dr. Ina Marsh, 140 Linwood Ave., Buffalo, N. Y., U. S. A., Registration Chairman.

Persian Gulf Medical Society, Dhahran, Saudi Arabia, Dec. 7-8. Dr. N. J. Conan Jr., Department of Internal Medicine, Arabian American Oil Company, Dhahran, Saudi Arabia, Secretary.

Regional Meeting, American College of Physicians, San Juan, Puerto Rico, Oct. 15-17. Dr. R. Rodriquez-Molina, Veterans Administration Center, San Juan, Puerto Rico, Governor.

Sectional Meeting, American College of Surgeons, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

World Conference on Medical Education, British Medical Association House, Tavistock Square, W.C.1, London, England, Aug. 22-29. Secretariat: World Medical Association, 2 East 103d St., New York 29, N. Y., U. S. A.

World Congress of the World Confederation for Physical Therapy, London, England, Sept. 7-12. Miss M. J. Neilson, Chartered Society of Physiotherapy, Tavistock House, South, Tavistock Square, London, W.C.1, England, Secretary.

World Medical Association, The Hague, Netherlands, Aug. 31-Sept. 7. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., Secretary-General.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* All centers where there are five or more candidates. Sept. 8-10 (Part I only). Candidates may file applications at any time, but the National Board must receive them at least six weeks before the date of the examination they wish to take. Exec. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Written.* Various Centers, July 16, 1954. Sec., Dr. Curtiss B. Hickox, 80 Seymour St., Hartford 15.

American Board of Dermatology and Syphilology: All candidates must now pass a written examination. *Written.* Various centers, Sept. 3. *Oral.* Philadelphia, Oct. 16-18. To be eligible, candidate must complete 36 months of training before Oct. 1. Final date for filing applications was May 1. Exec. Sec., Miss Janet Newkirk, 66 East 66th St., New York 21.

American Board of Internal Medicine: *Oral.* San Francisco, Sept. 30-Oct. 2, Chicago, Nov. 30-Dec. 2. The closing date for acceptance of applications for the San Francisco and Chicago oral examination was April 1. *Written.* October 19. The closing date for acceptance of applications was May 1. Exec. Sec.-Treas., Dr. William A. Werrell, 1 West Main St., Madison 3.

American Board of Neurological Surgery: *Oral.* New Haven, October. Final date for filing application was July 1, Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, Kingshighway and Euclid Ave., St. Louis.

American Board of Neurology and Psychiatry: *Psychiatry and Neurology.* Dec. 14-15. Applications no longer being accepted. Chicago, April 29-30. Final date for filing application is Feb. 1. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Obstetrics and Gynecology: *Written.* Various cities of the United States and Canada, Feb. 5. Application for examination or re-examination, as well as requests for resubmission of case reports, must be made prior to October 1. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: Chicago, Oct. 5-9. *Written.* Various Centers, January 1954. Final date for filing applications was July 1. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

American Board of Orthopaedic Surgery: Chicago, January 1954. Final date for filing application is August 15. Sec., Dr. Harold A. Sofield, 122 S. Michigan Ave., Chicago 3.

American Board of Otolaryngology: *Oral.* Chicago, Oct. 5-9. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

American Board of Pathology: *Written. Pathologic Anatomy and Clinical Pathology.* Chicago, Oct. 8-10. Sec., Dr. William B. Wartman, 303 E Chicago Ave., Chicago.

American Board of Pediatrics: *Oral.* Miami, Oct. 9-11; Indianapolis, Dec. 4-6. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Plastic Surgery: *Entire Examination.* San Diego, Oct. 29-31. Final date for receipt of case reports was June 1. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

American Board of Proctology: *Part II. Oral and Written. Anorectal Surgery and Proctology.* Philadelphia, Sept. 19. Sec., Dr. Louis A. Buie, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: *Oral. Radiology, Roentgenology, Diagnostic Roentgenology and Therapeutic Radiology.* Chicago, Dec. 6-11. Final date for filing application was July 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

Board of Thoracic Surgery: *Written.* Various centers throughout the country, September 11. Final date for filing application was July 1. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2.

DEATHS

Partlow, William Dempsey ⊕ Tuscaloosa, Ala.; born Feb. 4, 1877; Medical College of Alabama, Mobile, 1901; formerly on the faculty of his alma mater; specialist certified by the American Board of Psychiatry and Neurology; member of the Southern Psychiatric Association, of which he was past president, and the American Psychiatric Association; past president of the Medical Association of the State of Alabama and the Southern Neuropsychiatric Association; an organizer, past president, and secretary of the Alabama Society for Mental Hygiene; for many years superintendent of the Alabama Insane Hospital, which includes the Bryce Hospital and the Partlow State School in Tuscaloosa and the Searcy Hospital in Mount Vernon; awarded an honorary LL.D. by the University of Alabama in 1921; died July 7, aged 76, of pulmonary emphysema.

Whalen, John Francis ⊕ Altadena, Calif.; born in New Brunswick, N. J., Nov. 18, 1900; Jefferson Medical College of Philadelphia, 1927; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; formerly instructor in medicine at the University of Southern California School of Medicine; served as secretary, president, and chairman of the executive board of the Pasadena Medical Society; past president of the Pasadena Branch of the Los Angeles County Medical Society; affiliated with Huntington Memorial Hospital and St. Luke Hospital, where he was chairman of the board of directors and president of the staff; for many years on the staff of the Los Angeles County General Hospital; died July 3, aged 52, of coronary thrombosis and myocardial infarction.

Smith, H. Mason ⊕ Tampa, Fla.; born in Douglasville, Ga., May 10, 1884; University of Georgia Medical Department, Augusta, 1908; specialist certified by the American Board of Psychiatry and Neurology; member of the Southern Psychiatric Association and the American Psychiatric Association; fellow of the American College of Physicians; past president of the Florida Medical Association and the Florida State Board of Health; served during World War I; at one time superintendent of the Florida Hospital for the Insane in Chattahoochee; on the courtesy staffs of St. Joseph's and Tampa Municipal hospitals; consultant, Veterans Administration; neuropsychiatrist, Atlantic Coast Line Railway; died in St. Joseph's Hospital June 16, aged 69.

Roll, Lewis Robert ⊕ Seattle; born in Frankfort, Ind., April 20, 1910; University of Chicago School of Medicine, 1941; member of the American Trudeau Society; interned at Virginia Mason Hospital and Riverton Hospital for Chest Diseases; served a residency at the University Hospital in Ann Arbor, Mich.; clinical instructor in medicine at the University of Washington Medical School; in 1945-1946 affiliated with the Washington State Board of Health; for a short time director of Aldercrest Sanatorium in Snohomish; chief of medical service, Firland Sanatorium; died in the Swedish Hospital June 20, aged 43, of cerebral hemorrhage and basilar skull fracture as the result of a fall.

Stevenson, Frank Earl ⊕ Cincinnati; born in Circleville, Ohio, in 1895; University of Cincinnati College of Medicine, 1923; associate professor of pediatrics at his alma mater; during World War I in Chemical Warfare Service Arsenal in Maryland; specialist certified by the American Board of Pediatrics; member of the Cincinnati Academy of Medicine and the American Association for the Advancement of Science; affiliated with Children's and Cincinnati General hospitals; contributor of articles on infectious diseases to Cyclopedia of Medicine, Musser's Textbook of Internal Medicine, and Mitchell-Nelson Textbook of Pediatrics; died in Christian R. Holmes Hospital July 9, aged 57.

Warinner, Algernon Storrs ⊕ Hempstead, N. Y.; born in Richmond, Va., in 1894; Johns Hopkins University School of Medicine, Baltimore, 1920; fellow of the American College of Surgeons; chief of surgery, Mercy Hospital, Rockville Center; director of surgery, Meadowbrook Hospital in Hempstead; consultant, South Nassau Community Hospital in Rockville Center, North Country Community Hospital in Glen Cove, Nassau Hospital in Mineola, Southside Hospital in Bay Shore, and the Mather Memorial Hospital in Port Jefferson; died July 11, aged 58, of carcinoma of the left lung.

Bernstein, Solon S. ⊕ New York City; born in New York City Oct. 19, 1896; Columbia University College of Physicians and Surgeons, New York, 1920; specialist certified by the American Board of Internal Medicine; member of the American Heart Association, American Association for the Advancement of Science, National Tuberculosis Association, and the American Psychosomatic Society; served on the faculty of his alma mater; affiliated with Mount Sinai, Sydenham, Riverside, and Beth Israel hospitals; editor in chief, *Journal of the Mount Sinai Hospital;* died July 10, aged 56.

Buchanan, Albert S. ⊕ Prescott, Ark.; born in Prescott in 1881; University of Arkansas School of Medicine, Little Rock, 1905; past president of the Arkansas State Medical Society and the Sixth Councilor District Medical Society; past president and secretary-treasurer of the Arkansas Board of Medical Examiners; served as a member of the state board of health; member of the American Academy of General Practice; past president of the Nevada County Medical Society; on the staff of the Cora Donnell Hospital; died July 4, aged 72, of carcinoma of the left lung.

Bland, Leonard Frederick ⊕ Dallas, Texas; Memphis (Tenn.) Hospital Medical College, 1904; died in Baylor University Hospital May 10, aged 75, of uremia, prostatitis, and tuberculosis.

Bradford, Duke Constantine ⊕ Birmingham, Ala.; Birmingham Medical College, 1914; served during World War II; died in Walter Reed Army Hospital, Washington, D. C., April 11, aged 51, of carcinoma.

Briggs, Leroy Hewitt ⊕ San Francisco; University of California Medical School, San Francisco, 1908; William Watt Kerr professor of clinical medicine emeritus at his alma mater; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; chief physician, San Francisco Hospital; consulting physician, University of California, Franklin, French, and U. S. Marine hospitals; died in Notre Dame Hospital June 29, aged 70, of carcinoma of the rectum.

Browning, Zack Clark, Augusta, Ga.; University of Georgia School of Medicine, Augusta, 1946; resident, University Hospital; served during World War II; died April 30, aged 37, of coronary occlusion and pulmonary edema.

Clarke, Clayton Reynolds ⊕ Fort Worth, Texas; University of Buffalo School of Medicine, 1897; member of the Medical Society of the State of New York; for many years practiced in Ransomville, N. Y.; died June 20, aged 77, of a cerebral vascular accident and arteriosclerosis.

Costello, Bernard Edward ⊕ Vandling, Pa.; Jefferson Medical College of Philadelphia, 1914; died June 21, aged 74, of arteriosclerosis.

Dichek, Maurice ⊕ New York City; Middlesex University School of Medicine, Waltham, Mass., 1943; affiliated with Hospital for Joint Diseases and Medical Arts Center Hospital; died recently aged 34, of myocardial infarction.

Fernandes, Philip Mathias, Los Angeles; Howard University College of Medicine, Washington, D. C., 1935; died June 30, aged 47.

⊕ Indicates Member of the American Medical Association.

Ferringer, John Edward ⊕ Stoneboro, Pa.; Medical Department of the Western University of Pennsylvania, Pittsburgh, 1908; for many years president of the board of health of Stoneboro; examining school physician; on the staff of Grove City (Pa.) Hospital and Mercer Cottage Hospital in Mercer; died in Franklin (Pa.) City Hospital June 20, aged 74, of cirrhosis of the liver.

Fink, Harry Myer, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1900; served during World War I; affiliated with Montefiore Hospital, where he died June 26, aged 74, of arteriosclerotic heart disease and Stokes-Adams syndrome.

Ford, Charles ⊕ Hillsboro, Ill.; Barnes Medical College, St. Louis, 1904; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; died in Hillsboro Hospital April 22, aged 70, of a cerebral vascular accident.

Frandsen, Charles ⊕ Omaha; University of Nebraska College of Medicine, Omaha, 1918; associate in internal medicine at his alma mater; served during World War I; affiliated with Nebraska Methodist Hospital, Creighton Memorial St. Joseph's Hospital, and Bishop Clarkson Memorial Hospital; president of the staff of Immanuel Hospital; died June 20, aged 64, of coronary thrombosis.

Fulep, Joseph ⊕ Dannemora, N. Y.; Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultasa, Budapest, Hungary, 1923; supervising psychiatrist at the Dannemora State Hospital; died in Physicians Hospital, Plattsburgh, May 24, aged 58, of coronary thrombosis.

Glick, Meyer Joseph ⊕ Miami Beach, Fla.; Detroit College of Medicine and Surgery, 1925; died May 24, aged 59.

Graham, Fred Wilson ⊕ Morris, Ill.; Chicago Medical School, 1923; on the staff of the Morris Hospital; died July 14, aged 69, of cerebral hemorrhage.

Guice, Charles Lee ⊕ Gadsden, Ala.; Medical Department of Grant University, Chattanooga, Tenn., 1893; past president of the Etowah County Medical Society; member of the board of directors of the American National Bank; affiliated with Holy Name of Jesus Hospital, where he died July 8, aged 83, of arteriosclerotic heart disease and diabetes mellitus.

Herrmann, Ross Edward ⊕ Bradford, Ill.; University of Illinois College of Medicine, Chicago, 1934; served during World War II; died April 21, aged 46, of coronary disease.

Howard, Elmer Ellsworth, San Antonio, Texas; (licensed in Mississippi in 1902 and Illinois in 1925); formerly practiced in Chicago; died June 13, aged 74, of cerebral hemorrhage and hypertension.

Hurley, Frank James ⊕ Bennington, Vt.; Albany (N. Y.) Medical College, 1905; fellow of the American College of Surgeons; past president of the Vermont State Board of Medical Registration and the Vermont State Medical Society; chief of staff at Putnam Memorial Hospital, where he died June 28, aged 70, of coronary thrombosis.

Jones, Leonidas Leroy ⊕ Portsmouth, Va.; University of Pennsylvania School of Medicine, Philadelphia, 1917; fellow of the American College of Surgeons; served during World War I; affiliated with Kings Daughters Hospital and the Maryview Hospital, where he died May 29, aged 60, of coronary thrombosis.

Keese, John Mumford, ⊕ Syracuse, N. Y.; Hering Medical College, Chicago, 1898; on the staff of the Syracuse General Hospital; died June 19, aged 80, of acute myocardial insufficiency.

Kuhn, Leo Cornelius ⊕ Decorah, Iowa; the Hahnemann Medical College and Hospital, Chicago, 1916; past president of the Winneshiek County Medical Society; member of the Radiological Society of North America, Iowa Heart Association, American Heart Association, and the Rock Island Railway Surgeons Association; served during World War I; died June 23, aged 64, of acute coronary occlusion.

Lemieu, Theodule Alfred ⊕ Lawrence, Mass.; Laval University Faculty of Medicine, Quebec, 1897; died in New England Medical Center, Boston, May 30, aged 80, of acute myocardial infarction.

McDonnell, John Joseph, Scranton, Pa.; Georgetown University School of Medicine, Washington, D. C., 1931; attending physician at Marywood College; affiliated with St. Mary's Hospital and Mercy Hospital, where he died June 19, aged 50.

Meister, Edward Frederick ⊕ Buffalo; University of Buffalo School of Medicine, 1913; affiliated with Buffalo General Hospital, Edward J. Meyer Hospital, and the Millard Fillmore Hospital, where he died June 7, aged 64, of hepatocellular carcinoma of the liver.

Merz, Adolph, St. Louis; Marion-Sims Beaumont Medical College, St. Louis, 1903; affiliated with Lutheran and Alexian Brothers hospitals; died in St. Anthony's Hospital June 29, aged 71, of uremia, following intestinal surgery.

Miller, John Floyd ⊕ Marion, N. C.; Medico-Chirurgical College of Philadelphia, 1906; county physician; on the staff of the Marion General Hospital; died in Baptist Hospital, Winston-Salem, June 2, aged 75, of ruptured aortic aneurysm.

Miller, John Johnston Jr. ⊕ San Francisco; Stanford University School of Medicine, San Francisco, 1929; associate clinical professor of pediatrics at his alma mater; specialist certified by the American Board of Pediatrics; member of the American Pediatric Society, American Academy of Pediatrics, and the American Public Health Association; served during World War II; affiliated with San Francisco and French hospitals; died June 13, aged 49, of carcinoma of the rectum.

Morison, Garnett Pierce ⊕ Charles Town, W. Va.; Chicago College of Medicine and Surgery, 1914; past president of the West Virginia Academy of Ophthalmology and Otolaryngology; served as president, secretary, and treasurer of the Eastern Panhandle Medical Society; veteran of World War I; for two terms mayor of Charles Town; formerly health officer of Jefferson County; on the staff of the Charles Town General Hospital, where he died June 27, aged 68, of a heart attack.

Murphy, Wilbur J., New York; Fordham University School of Medicine, New York, 1912; died in Misericordia Hospital July 3, aged 82, of cerebral hemorrhage.

O'Connor, Charles Mallon ⊕ Colonel U. S. Army, retired, Palo Alto, Calif.; University of Virginia Department of Medicine, Charlottesville, 1913; fellow of the American College of Surgeons; entered the medical corps of the U. S. Army in July, 1915 and retired May 31, 1947; served during World War II; fellow of the American College of Surgeons; died June 3, aged 63, of coronary thrombosis.

Olch, Benedict, Dayton, Ohio; Harvard Medical School, Boston, 1919; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; affiliated with Good Samaritan and St. Elizabeth hospitals; member of the board of directors and chief in medicine at Miami Valley Hospital; died June 27, aged 59, of coronary thrombosis.

Palfrey, Francis Winslow ⊕ Duxbury, Mass.; Harvard Medical School, Boston, 1902; an Associate Fellow of the American Medical Association; formerly on the faculty of his alma mater; served in France during World War I; affiliated with Massachusetts General and Boston City hospitals; died June 11, aged 76, of coronary thrombosis.

Pattajo, Christus Alexander, Belmont, Mass.; Harvard Medical School, Boston, 1911; for many years physician at the Suffolk Downs race track; served on the staff of the Massachusetts General Hospital in Boston; died June 11, aged 69.

Patton, Lewis Suddath ⊕ Athens, Ga.; Emory University School of Medicine, 1923; affiliated with Athens General and St. Mary's Hospital; died in Elberton June 23, aged 57, of injuries received in an automobile accident.

Pfisterer, Frank William, Milwaukee; Marquette University School of Medicine, Milwaukee, 1913; died in Columbia Hospital June 16, aged 65, of hypertension and arteriosclerotic heart disease.

Popovich, Theodore, Fayetteville, Ark; Columbia University College of Physicians and Surgeons, New York, 1924; served during World War II; affiliated with Veterans Administration; died in Veterans Administration Hospital May 27, aged 53, of bronchopneumonia and tracheal obstruction.

Priessman, Frank Albert ⊕ Keokuk, Iowa; Chicago College of Medicine and Surgery, 1913; served during World War I; affiliated with Graham and St. Joseph's hospitals; died May 13, aged 68, of carcinoma of the liver.

Purdy, Charles Humphrey ⊕ Jersey City, N. J.; Bellevue Hospital Medical College, New York, 1895; for many years affiliated with Christ Hospital and Jersey City Medical Center; died July 1, aged 85, of acute coronary occlusion.

Ranes, Annie R., Chicago; Illinois Medical College, Chicago, 1903; died June 22, aged 82, of chronic myocarditis.

Rau, Conrad Fred ⊕ Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1904; died May 3, aged 70.

Reimel, Clara, West Oak Lane, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1895; died June 30, aged 81.

Scantleton, John Martin ⊕ Sparta, Wis.; Northwestern University Medical School, Chicago, 1913; died in St. Mary's Hospital June 16, aged 63, of cerebral hemorrhage.

Schilling, Albert Henry ⊕ Mariemont, Ohio; University of Cincinnati College of Medicine, 1942; served during World War II; affiliated with Our Lady of Mercy Hospital; died June 23, aged 38, of pulmonary embolism.

Schmidt, Walter William ⊕ Cliffside Park, N. J.; University and Bellevue Hospital Medical College, New York, 1912; served during World War I; for many years member of the Cliffside Park Health Board; formerly member of the board of education; on the staff of the Englewood (N. J.) Hospital, where he died June 7, aged 62, of cardiac failure.

Scimeca, Anthony J., Kansas City, Mo.; St. Louis College of Physicians and Surgeons, 1922; died June 30, aged 55, of coronary disease.

Seedenburg, Jesse Peightal, Pittsburgh; Jefferson Medical College of Philadelphia, 1907; for many years medical examiner for the Equitable Life Assurance Company; affiliated with Pennhurst State School in Spring City; died in Phoenixville, Pa., July 1, aged 73, of cirrhosis of the liver.

Shea, John ⊕ Bridgeport, Conn.; College of Physicians and Surgeons, Baltimore, 1911; member of the founders group of the American Board of Surgery; fellow of the American College of Surgeons; past president of the Fairfield County Medical Society; affiliated with the Bridgeport Hospital, where he died June 12, aged 67, of acute hemorrhagic pancreatitis.

Shukuris, Avraam Andronious ⊕ New York City; Columbia University College of Physicians and Surgeons, New York, 1921; fellow of the American College of Surgeons; affiliated with French and Harlem hospitals; died June 18, aged 60, of metastatic carcinoma of the brain.

Singer, Erich ⊕ New York City; Medizinische Fakultät der Universität, Vienna, Austria, 1924; on the staff of the Mount Sinai Hospital; died in Jewish Memorial Hospital May 11, aged 53, of acute coronary thrombosis.

Smith, Benjamin T. ⊕ Carnesville, Ga.; Atlanta College of Physicians and Surgeons, 1906; died in Milledgeville May 28, aged 80, of a cerebrovascular accident, hypertension, and arteriosclerosis.

Smith, Earle Edwin, Bardwell, Ky.; University of Tennessee College of Medicine, Memphis, 1914; died May 13, aged 64, of coronary occlusion.

Smith, James Henderson ⊕ Richmond, Va.; University College of Medicine, Richmond, 1910; professor of clinical medicine at the Medical College of Virginia; specialist certified by the American Board of Internal Medicine; member of the American Clinical and Climatological Association; past president of the Richmond Academy of Medicine; served during World War I; on the staff of St. Luke's Hospital, where he died June 4, aged 70, of coronary occlusion.

Snook, Lee Owen Jr. ⊕ Wesley, Iowa; Northwestern University Medical School, Chicago, 1940; president of the Kossuth County Medical Society; president of the local school board; charter member of the library board; past president of the Lions Club; died in St. Ann's Hospital, Algona, June 3, aged 42, of acute nephritis and hypertension.

Snyder, Simon Barron ⊕ Hazard, Ky.; Hospital College of Medicine, Louisville, 1897; affiliated with Hurst-Snyder Hospital, where he died May 1, aged 84, of coronary thrombosis.

Stephens, Anna Overholt ⊕ State College, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1936; affiliated with Pennsylvania State College; died June 29, aged 49, of a cerebrovascular accident.

Sternberg, Joseph D. ⊕ Portland, Ore.; Rush Medical College, Chicago, 1901; affiliated with St. Vincent's Hospital; died June 17, aged 75, of coronary thrombosis.

Stouffer, Clyde Bruce, Ann Arbor, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1913; died in St. Joseph's Mercy Hospital June 12, aged 75, of a hip fracture suffered in a fall.

Troutman, George Christian, Exeter Township, Douglassville R.D., Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; died in Wernersville (Pa.) State Hospital June 19, aged 75, of hypostatic pneumonia and arteriosclerosis.

Urbanski, Walter Joseph, Cleveland; Ohio State University College of Medicine, Columbus, 1938; served during World War II; affiliated with St. Alexis Hospital, where he died July 8, aged 45, of carcinoma of the rectum.

Walker, Francis Milton, Rochester, N. Y.; College of Physicians and Surgeons, Baltimore, 1906; died July 1, aged 72, of coronary occlusion.

Wallace, John C., Arlington, Va.; Medical Department of Tulane University of Louisiana, New Orleans, 1899; died June 30, aged 78.

Wallace, Paul Bartlett, Montrose, Colo.; Hering Medical College, Chicago, Homeopathic, 1902; died June 26, aged 74, of cardiac failure and right hemiplegia.

Wells, Frank Happersett ⊕ West Chester, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1913; served during World War I; affiliated with Chester County Hospital, where he died June 29, aged 67, of carcinoma of the rectum.

Whiteside, Jesse DuBois ⊕ Aberdeen, S. D.; Northwestern University Medical School, Chicago, 1906; fellow of the American College of Surgeons; served during World War I; affiliated with St. Luke's Hospital, where he died May 18, aged 74, of arteriosclerosis.

Wilson, William Franklin ⊕ Lake City, Minn.; Chicago Medical College, 1891; an Associate Fellow of the American Medical Association; for many years secretary-treasurer of the Wabasha County Medical Society; on the staff of Lake City Municipal Hospital; died May 28, aged 88, of coronary occlusion.

Wolk, Melvin ⊕ New York City; University and Bellevue Hospital Medical College, New York, 1907; adjunct professor of gynecology and obstetrics at the New York Polyclinic Medical School and Hospital, where he died June 5, aged 75.

Young, William B., Cincinnati; Medical College of Ohio, Cincinnati, 1894; died May 22, aged 83.

Zabokrtsky, Joseph ⊕ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; fellow of the American College of Surgeons; served during World War I; for many years affiliated with the Hospital of St. Anthony de Padua, where he died July 12, aged 79, of carcinoma of the stomach.

Zimmerman, Albert Sidney ⊕ Montgomery, Ala.; University of the South Medical Department, Sewanee, Tenn., 1897; served as secretary-treasurer of Lauderdale County Medical Society; formerly health officer of Lauderdale County; died in Prattville May 15, aged 83, of cerebral hemorrhage.

FOREIGN LETTERS

LONDON

Organized Clinical Research.—The setting up of a clinical research board is one of the major recommendations contained in a recently published White Paper entitled "Clinical Research in Relation to the National Health Service." Under the National Health Service Acts the Minister of Health and the Secretary of State for Scotland are given powers to undertake research or to help others to do so. Direct powers to undertake research are also conferred on the boards of governors of teaching hospitals, regional hospital boards, and hospital management committees. Independently of these acts and dating back to powers granted under the Ministry of Health Act, 1919, the Medical Research Council has the duty within the United Kingdom, and the powers elsewhere, to promote medical research of all kinds, including research that requires direct access to patients. In order to coordinate these different provisions, a joint committee of the Medical Research Council and the Standing Medical Advisory Committee of the Ministry of Health was appointed, and it is the report of this committee that has been published as a White Paper.

A clinical research board was said to be necessary for the following reasons: (*a*) to advise on the spending of funds provided by the government; (*b*) to deal with investigations and field researches that extend beyond regional boundaries or that are beyond the resources or outside the scope of local bodies; (*c*) to encourage research in fields not hitherto adequately covered; (*d*) to collect, collate, and distribute information to help in reducing the time lag between discoveries and their application and to avoid unintentional reduplication of investigations; and (*e*) to supervise an organization providing careers in clinical research in association with the National Health Service. The board would be essentially concerned with promoting clinical research on a national basis, and its scope would range from "problems of basic clinical research to broad investigations of the applicability of a remedy or the prevalence of an illness." The board would function by giving research grants and setting up clinical research units. It is recommended that the clinical research board would be appointed by, and would be responsible to, the Medical Research Council. It would have 10 members, 5 chosen from a panel prepared by the health departments and 5 chosen from a panel prepared by the Medical Research Council. The chairman would be chosen by the Medical Research Council. "The aim should be to form a well-balanced team of persons experienced in the clinical and research fields." The estimated additional funds required annually for the work of the board are £50,000 in the first year, increasing to £250,000 in the third and fourth years.

In addition, it is thought that there should be decentralized research at the level of regional hospital boards, boards of governors, and hospital management committees financed from National Health Service funds or from local resources. Such "decentralized research" is considered necessary (*a*) to foster the research spirit in medicine that is demanded by the highest standards of clinical practice and (*b*) to facilitate the discovery and encouragement of local talent. A research committee should be set up by each hospital board, after consultation and in agreement with the associated university or medical school, to advise on the spending of the research budget and the appointment of research workers. Yearly reports should be submitted by hospital boards to the Ministry of Health for transmission to the Clinical Research Board.

The whole problem of careers in clinical research is considered in detail. The view is expressed that "any scheme for careers in clinical research which does not provide terms and conditions as attractive as the best in medicine is unlikely to maintain in its service the requisite quota of able men." Therefore, "any scheme for clinical research workers which puts them in a position inferior to practising colleagues would be certain to arouse resentment." The "inescapable conclusion" is that clinical research careers must be equated with careers in the National Health Service, i. e., they must confer the same status, carry the same salary and superannuation rights, and entitle the holder to the same distinction awards. This would ensure complete freedom of interchange of staff and allow a man to revert from clinical research to a purely clinical appointment should he wish to do so, without any loss of status, salary, or superannuation rights. Further, any criteria for determining the training of consultants and specialists should recognize research and clinical experience in a field of clinical research as appropriate training for according full consultant or specialist status in that particular field."

These proposals have been "welcomed and accepted, subject to detailed consideration of their practical application" by the responsible ministers, as well as by the Chancellor of the Exchequer, and the latter is "ready to agree in principle to reasonable additional financial provision from the Exchequer, on the lines suggested in the report, as the work develops."

Prescribability of Proprietaries.—Almost coincidentally with the fifth anniversary of the inauguration of the National Health Service, the first steps have been taken in the Ministry of Health's campaign to reduce the national drug bill by proscribing proprietary medicine. The build-up of this offensive goes back to 1949, when there was established a joint committee on prescribing of the Central and Scottish Health Services Councils to "consider the report from time to time whether it is desirable and practicable to restrict or discourage the prescribing by practitioners giving general medical services under the National Health Service Acts of 1946 and 1947, of (1) drugs and medicines of doubtful value or of unethical character; (2) unnecessarily expensive brands of standard drugs." In June, 1950, the committee presented an interim report, the gist of which was that proprietary preparations could conveniently be arranged in six categories: (1) new drugs of proved value not yet standard; (2) proprietary brands of standard drugs, singly or in combination; (3) standard preparations, and new remedies of proved value, in elegant form or vehicle; (4) qualitative and/or quantitative modifications in the composition or combination of standard preparations, or new remedies of proved value, that are not accepted as therapeutically superior to preparations included either alone or in combination in the British Pharmacopoeia, the British Pharmaceutical Codex, or the National Formulary; (5) preparations not in the British Pharmacopoeia, British Pharmaceutical Codex, or National Formulary, which in the committee's view have not been proved of therapeutic value; and (6) preparations that are a combination of (4) and (5). The committee recommended that proprietary preparations in category 1 should be "freely prescribable," and that those in categories 2, 3, and 4 should be prescribable provided they were not advertised to the public and provided satisfactory arrangements for pricing could be made between the health departments and the manufacturers. Categories 5 and 6 were dealt with as follows: "Apart from preparations in categories (5) and (6) . . . we have no reason for suggesting on medical grounds that these proprietary preparations should not be freely prescribable in the National Health Service except when advertised to the public."

This report having been accepted, the committee then proceeded to classify proprietary preparations according to the six categories. During the last 2½ years, the committee has reviewed some 5,000 preparations, and 800 of these have been placed in categories 1, 5, or 6. A list of these 800 preparations has been sent to every physician taking part in the National Health Service. This list shows that 150 preparations have been placed in category 1, and 650 in categories 5 and 6. It is stated that preparations not shown in this list may be assumed to fall into categories 2, 3, and 4, until supplementary lists are issued. The bulk of the preparations placed in categories 5 and

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

6 consist of polyglandular oral preparations, enzyme preparations, such as diastase and pepsin, some metallic colloidal preparations, oral vaccines, chlorophyll tablets, and epinephrine (Adrenalin) cream.

In a covering letter, the chief medical officer of the Ministry of Health asks practitioners not to prescribe preparations in categories 5 and 6 and "only to prescribe preparations not included in the enclosed lists after you have ascertained the cost and compared it with that of identical or similar standard preparations and not to prescribe preparations of which the price is not readily and conveniently ascertainable." He adds: "Obviously what I have said is without prejudice to your right to prescribe whatever you think necessary in any individual case but a general practitioner may, of course, be called on to justify the cost of his prescribing to his colleagues on the Local Medical Committee." Such veiled threats are anathema to a liberal profession, but they seem to be the inevitable accompaniment of a government-controlled service. On the other hand, it is only fair to point out that few, if any, of the banned preparations are any loss to treatment. Even the Association of British Pharmaceutical Industry can find no real grounds for criticism of the classification on this account.

PARIS

Tetanus in France.—In a lecture before the National Academy of Surgery, M. J. Chavannaz drew attention to the presence of tetanus in France in time of peace and to the existence of certain dangerous areas, especially Nanterre. On the other hand, railway workshops and the great metallurgic plants of Creusot and Northern France are quite unaffected. An inquiry among physicians of the Gironde Département as early as 1932 allowed the author to gather 50 unpublished cases of tetanus, most of them fatal. These morbidity and mortality rates occurred in spite of many precautions and systematic administration of tetanus toxoid in cases of wounds. The author pointed out certain other areas in which tetanus has occurred in the Dordogne Département since 1932 and in Normandy. Prof. C. B. Griffiths and Mrs. Groselier drew attention to other regions, the valleys of the Allier and Dore rivers and also in Meurthe-et-moselle. According to Professor Galy, tetanus is also frequent in certain regions of Ardèche. Chavannaz proposed drawing a detailed map of regions in which tetanus occurs often in France in order to facilitate prevention of this disease.

A New Antituberculosis Agent.—A new substance synthesized by the chemist H. Passedouet is the isonicotinyl hydrazone of glucuronolactone. Biological and clinical experiments were carried out by Prof. G. Brouet and Drs. B. N. Halpern, J. Marche, and J. Mallet, at the Lariboisière Hospital and the Broussais Hospital.

Experiments with this new substance on mice revealed that it is one-fifth as toxic as isoniazid; the LD_{50} dose is 30 mg. per 20 gm. of body weight, whereas for isoniazid it is 4 to 5 mg. per 20 gm. of body weight. Administration of this new substance to young rats for a long period revealed that it stimulates appetite and has a eutrophic action. Studies on dogs with the large intravenous dose of 30 mg. per kilogram of body weight revealed that this drug does not modify the effects of electrical excitation of the sympathetic nerves. Studies of metabolism in the dog showed that, following intravenous administration of the drug, it is eliminated rapidly; 400 mg. were eliminated within three hours.

Bacteriostatic action of this substance in comparison to that of isoniazid and streptomycin in vitro for 28 different strains of Mycobacterium tuberculosis was studied. Experiments showed that, in an equal weight, the action of the new substance is equivalent to that of isoniazid. Investigations on the guinea pig and rabbit revealed in the rabbit a normal pulmonary radiographic image during treatment; 60 days later autopsy showed the absence of lesions, or if any were present, they were very small. Results were identical with those obtained with an equal amount of isoniazid. The authors conclude that, in animals, this new drug exerts a potent therapeutic effect on experimental tuberculous infection induced by various strains of the tubercle bacillus injected subcutaneously as well as intravenously. It provides immediate protection for most of the animals treated and slows the evolution of existing tuberculosis.

Clinical studies were made on 36 patients (15 men and 21 women) who were observed for four months. The drug was given in the daily dose of 1.2 to 1.6 gm. Tolerance was remarkable: no renal, hepatic, or neurotonic disorders were observed. Gastric pain and nausea were reported with a dose of 2 gm. The action of the drug on the general condition and on the temperature is remarkable. More surprising were bacteriological results; within the first week of treatment the sputum became negative; roentgenologic results were good in 25 cases of recent infection, of which 19 were the ulceronodular form. In 10 cases regression of cavities and in 7 their disappearance was observed. Two failures are reported. On the contrary, in long-standing tuberculosis, no improvement was noted except in three patients with old, but limited lesions, in whom bacteriological improvement was observed.

Radioactive Iodine in Exophthalmic Goiter.—Prof. Gilbert Dreyfus and Drs. M. Zara, Ambrosino, Triantaphyllides, and J. Ginzburger have employed radioactive iodine (I^{131}) in treatment of 100 cases of exophthalmic goiter (Basedow's disease) over a two year period in La Pitié Hospital. The principal indications for this treatment are recurrence of thyroiditis following surgical treatment, thyroiditis that is not amenable to the usual medical treatment, forms associated with progressive tuberculosis, and the presence of psychosis that contraindicates surgical treatment. Radioactive iodine has also been used when, on social or professional grounds, the patient was unable to undergo treatment extending over many months. The authors include among contraindications saturation of the thyroid with iodine following treatment with iodine even a long time previously. They do not use this form of treatment in very young children or during pregnancy, as the fetal thyroid is receptive to the radioactive material from the third month of gestation.

The method of treatment is simple. The patient drinks one glass of water containing the radioactive iodine, and the hyperactive thyroid cells pick up their own destructive agent. The dose depends on the rate of uptake in the individual patient. Biological success is obtained in 30% of normal subjects and in between 20 and 70% of persons with exophthalmic goiter. The doses of radioactive iodine required for the cure vary from 3 to 30 mc. According to the authors, these doses are proportional to the degree of hyperthyroidism; in severe cases 15 to 25 mc. are required, in moderate cases 10 to 15 mc., and in mild cases 5 to 10 mc. On the other hand, doses are proportional to the volume of the thyroid gland and inversely proportional to the age of the patient. Aged patients require smaller doses than young persons. Total doses were divided into three to five individual doses for severe cases, into two to three doses in moderate cases, and into one to two doses in mild cases.

In a series of 62 patients, and after an eight month period of observation, the authors noted the following results: There were 23 complete recoveries with disappearance of clinical signs of thyroid toxicity and normalization of the radioactive iodine uptake curve, and 23 apparent recoveries, with disappearance of clinical signs and atypical uptake curves. Maintenance therapy is necessary in order to prevent relapse. In 13 cases there was an incomplete recovery, in 1 case failure, and in 2 cases the patients were lost to observation. The authors emphasize that the older the patients, the better the results obtained. The time at which the action of the drug occurs is variable; an immediate improvement may be noted within a few days of administration of the first dose, with slowing of the pulse and weight increase. The improvement may also be delayed, and there may even be general aggravation of symptoms. As a rule, improvement is evident by the end of the first month following treatment. The authors believe that now it should be possible to cure exophthalmic goiter in less than six months. A quicker recovery or doses given at too short intervals may lead to myxedema, or to edematous exophthalmos. The authors also presented a woman who had had severe asystolia associated with exophthalmic goiter. A complete cure was obtained with radioactive iodine.

CORRESPONDENCE

HOBBIES

To the Editor:—I like that engaging new feature "The Leisure Corner," which I came across for the first time in THE JOURNAL of July 4. Because the column so aroused my interest in spare time pursuits, I shall look forward to reading future pieces.

The benefits of philately as a hobby were demonstrated July 11 to 27 at the Cleveland Health Museum during the Third National Medical Stamp Exhibit, sponsored by the museum and the Garfield-Perry Stamp Club of Cleveland. This exhibit featured stamps that are connected with medicine through their designs or reason for issue, together with pertinent background information. The extent of the background material depended on how much research each exhibitor could, or would, lavish on his hobby. The entries of Mrs. R. B. Leggett, Houston, Texas, were accorded honorable mention. Prior to the exhibition, her physician wrote that Mrs. Leggett has been bedridden for years with atrophic arthritis, and he added: "Did you know under what trying circumstances she has prepared for her exhibit, you would appreciate how great has been the effort." In a notation on her entry blank, Mrs. Leggett wrote: "Stamp-collecting is my greatest therapy." Three men, all physicians, attained top honors. The comprehensive album pages of A. B. Bruner, M.D., Cleveland, won a gold cup and first-prize award certificate. The entry of Maurice J. Strauss, M.D., New Haven, Conn., placed second, and that of C. S. Hitchins, M.D., also of New Haven, was third.

We may conclude that the rewards of the philatelist are varied. To the physician, stamp-collecting gives a good feeling of individuality and relaxation, plus an occasional award to bolster a sense of accomplishment and recognition. To the shut-in, philately even has a therapeutic value. I feel confident that "The Leisure Corner" will suggest other thought-provoking and, let us hope, action-provoking outside interests.

BRUNO GEBHARD, M.D., Director
Cleveland Health Museum
8911 Euclid Ave., Cleveland 6.

OPTIC NEURITIS

To the Editor:—The correspondence of Martin M. Fisher, M.D., in THE JOURNAL, June 13, 1953, page 628, with reference to bilateral optic neuritis following enormous doses of chloramphenicol was carefully read by those who reported the case originally (Lasky, M. A.; Pincus, M. H., and Katlan, N. R.: *J. A. M. A.* **151**:1401 [April 18] 1953). The references mentioned and numerous others were read by us previously. The reports in the literature concerning the ophthalmologic findings associated with bacterial endocarditis describe two types: bilateral papilledema (in which the vision remains normal for a long time) and embolic phenomenon (unilateral optic neuritis, with unilateral loss of vision). The case we reported was that of rapid bilateral loss of vision. The edema of the nerve heads was not that of papilledema as the loss of vision was extremely rapid and the edema was slight and nonprogressive. That the loss of vision was embolic is also extremely unlikely, since embolism would have had to occur both simultaneously and bilaterally. In addition, this patient had been over his attack of bacterial endocarditis for several weeks when the ophthalmologic findings became manifest. For these reasons it is our belief that the case presented was one of toxic bilateral optic neuritis caused not by the bacterial endocarditis but by the large doses of the drug the patient had consumed.

NATHANIEL R. KATLAN, M.D.
56-38 Main St.
Flushing, N. Y.

TOO MUCH ROUTINE CARE

To the Editor:—After 30 years of obstetric experience, I sometimes think patients are subjected to too much routine study and treatment. Perhaps we have swung too far, therapeutically, from supporting patients in their natural functions and physiological reactions. The multiplicity of scientific articles that are simply statistical, often with the lack of perspective that term implies, seems to be in part the basis for these practices, which too often are put into effect en masse with little respect for individual reactions. Aspects of routine postpartum care in lying-in hospitals, such as (1) excessively early ambulation when involution is just beginning, (2) involution of the breasts too quickly (and distortion of normal hormonal balance) by the administration of hormones when simple supportive measures, including sufficient fluids, give better results, and (3) unnecessary treatments of the perineal wound, which needs nothing more than simple cleansing, are glaring examples. A recent editorial, "The Vaginal Douche—A Gynecologic Anachronism," (S. L. Israel: *Obst. & Gynec.* [May] 1953) is especially apropos. It presents the simple understanding of basic physiology from which, I believe, we should not be diverted by the complexities of modern medicine.

BERNARD NOTES, M.D.
1801 Eye St., N.W., Washington 6, D. C.

MILKER'S NODULES

To the Editor:—After noting Dr. Green's (*J. A. M. A.* **152**:757 [June 20] 1953) and Dr. Lane's (*J. A. M. A.* **152**:1067 [July 11] 1953) letters, and also for statistical purposes, I would like to add another published case of milker's nodules in New England (Ronchese, F.: Occupational Marks, New York, Grune & Stratton, 1948, p. 162 [fig. 150]). These were seen on a farm worker in July, 1941. Site, clinical appearance, and histopathology contributed to the diagnosis. This is the only case I have seen in 25 years of practice in Rhode Island. The rarity undoubtedly is due to the milking machine having replaced manual labor on many farms. For this reason, milker's nodules are of little value as marks of the trade. A warty lesion on a farmer is not necessarily a milker's nodule. With uncertain bacteriological and histological features, I am inclined to rely on the location (contact) and the purple-red base for a fair clinical diagnosis.

F. RONCHESE, M.D.
170 Waterman St.
Providence 6, R. I.

NOCTURNAL ENURESIS

To the Editor:—In an article in THE JOURNAL (**152**:381 [May 30] 1953), T. V. Geppert reports favorable results in treating a group of patients with chronic nocturnal enuresis. They were treated by being awakened by an automatic electric alarm immediately after the commencement of nocturnal urination. I proposed a similar type of therapy a few years ago in the *Swiss Medical Weekly* (*Schweiz. med. Wchnschr.* 78:361, 1948). The purpose of my procedure was the same: to condition the patients to awaken at the very moment of enuresis. Instead of an automatic electric alarm, which may disturb other persons too, a harmless but awakening electric current was used to condition the patient. This conditioning therapy allows the treatment of many children in the same room with individual conditioning stimuli.

ROLAND FISCHER, PH.D.,
Regina General Hospital,
Munroe Wing, Research Laboratory,
Regina, Sask., Canada.

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Am. J. Diseases Children, Chicago

85:523-632 (May) 1953

Ovarian Agenesis (Congenital Aplastic Ovaries) in Children. H. K. Silver and C. H. Kempe.—p. 523.
*Cystinosis: Report of Two Cases with Postmortem Examination. H. F. Jackson and B. E. Clarke.—p. 531.
Diphenhydramine (Benadryl) and Tripelennamine (Pyribenzamine) Intoxication in Children. D. J. Judge and K. W. Dumars Jr.—p. 545.
Lymphosarcoma of Cecum Causing Intussusception in Nine-Year-old Boy. J. Erbes and J. S. Stehlin Jr.—p. 551.
*Periarteritis Nodosa: Report of Case of Apparent Recovery in Nine-Year-Old Boy During Cortisone Therapy. J. H. Dent, J. E. Strange, W. Sako and D. J. York.—p. 556.
Chronic Gastric Ulcer in Childhood: Critical Analysis of Literature with Report of Case in 11-Year-Old Boy. W. M. Block.—p. 566.
Galactosemia: Unusual Cause of Neonatal Jaundice. D. Johns.—p. 575.

Cystinosis.—Cystinosis, a disturbance of protein metabolism that results in deposition of cystine in the tissues is reported in two siblings, a boy, 5 years and 9 months old, and a girl, 7 years and 3 months old. The clinical opinion was that these two children had a congenital anomaly of the urinary tract with resulting renal failure, secondary hyperplasia of the parathyroid glands, renal osteodystrophy, cardiac failure, and terminal uremia. The postmortem findings in the two cases were almost identical. Each child was markedly underdeveloped and poorly nourished. Microscopic examination revealed collections of crystalline material deposited in the tissues in the form of tiny irregular fragments, but some large crystals also were present. This material was soluble in hydrochloric acid and in ammonia. Chemical tests for cystine were positive. The cystine was most abundant in the spleen. The lymph nodes also contained a great deal of cystine. It was abundant in the cortex, both within the germinal centers and within the intervening tissue. Cystine was observed in the liver, thyroid, intestinal mucosa, lungs, in adrenals, pancreas, and testicles. Postmortem diagnosis was cystinosis, with nephrosclerosis, cardiac hypertrophy, passive hyperemia of the lungs, liver and spleen, hyperplasia of the parathyroids, uremic pericarditis, and uremic enterocolitis as secondary lesions. Animal experiments showed that the deposits in the tissues are not the result of disturbed renal excretion of cystine. The mechanism of the intractable rickets that accompanies cystinosis is also obscure. Both of the authors' patients had acidosis and hypophosphatemia before there was evidence of renal failure. The presence of early acidosis is fairly convincing evidence that the cystinosis may from the very beginning be combined with acidosis, but that does not provide any explanation as to the genesis of the acidosis. The renal lesions are also unexplained. Cystinosis is probably not so rare as the only 18 previously recorded cases suggest. The authors' two cases are the first reported in the United States.

Periarteritis Nodosa.—The occurrence of periarteritis nodosa in a 9-year-old boy is reported. The diagnosis was established by biopsy during the 31st month of illness. The patient apparently recovered from the disease during a 55 day period of therapy with cortisone, vitamins, and acetylsalicylic acid. A total dose of 3.025 gm. of cortisone was given. The hormone was administered after penicillin, streptomycin, aureomycin, sulfonamides, and other measures had proved ineffective. The patient has been free of symptoms, and his physical, mental, and emotional development was progressing normally two years after withdrawal of the drug.

American Journal of Physiology, Washington

173:1-188 (April) 1953. **Partial Index**

Relationship of Cell Surface of Metabolism: IX. Digestion of Phosphorylated Compounds by Enzymes Located on Surface of Intestinal Cell. A. Rothstein, R. C. Meier and T. G. Scharff.—p. 41.
Latency of Pyrogen Fever: Appearance of Fast-Acting Pyrogen in Blood of Febrile Animals and in Plasma Incubated with Bacterial Pyrogen. R. Grant and W. J. Whalen.—p. 47.
Carbon Monoxide Oxidation by Cytochrome Oxidase in Muscle. B. Breckenridge.—p. 61.
Effects of Certain Autonomic Blocking Agents on Striated Muscle Function. R. P. Jepson, F. A. Simeone and R B. Lynn.—p. 70.
Effect of Electrical Stimulation on Glycogen Concentration in Skeletal Muscle During Acute Inanition. R. R. Nielson and J. D. Thomson. —p. 75.
Late Effects of Antrum Resection on Gastric Secretion. E. R. Woodward and L. R. Dragstedt.—p. 89.
Metabolic Effects of Experimental Colon Adhesions in Rats and Rabbits. W. C. Brigham.—p. 91.
Gastric Acid Secretion and Gastric Ulcer Formation of Rats and Guinea Pigs. J. L. Ambrus, C. M. Ambrus and J. W. E. Harrisson.—p. 95.
Blood Volume in Hypothermic Dog. H. E. D'Amato and A. H. Hegnauer. —p. 100.
Effect of Whole-Body X-Irradiation on Urinary B-Vitamin Excretion of Rats. W. N. Pearson, J. P. Owens, G. W. Hudson and W. J. Darby. —p. 120.
Effect of Pentobarbital and Ether on Spreading Cortical Depression. A. van Harreveld and J. S. Stamm.—p. 164.
Effects of Single Injection of Corticotropin (ACTH) on Ammonium Ion and Acetylcholine Content of Brain. C. Torda.—p. 176.

Antibiotics & Chemotherapy, Washington, D. C.

3:473-560 (May) 1953. **Partial Index**

Erythromycin Serum Concentrations Following Administration in Acid-Resistant Tablets. W. M. M. Kirby, F. M. Maple and B. O'Leary. —p. 473.
*Fungistatic Activity of Methylparaben and Propylparaben. M. Siegel. —p. 478.
*Severe Serum Sickness Reaction with Cyanosis Following Terramycin. T. G. Johnston and A. G. Cazort.—p. 481.
Synergistic Effect of Sulfadiazine and Daraprim Against Experimental Toxoplasmosis in the Mouse. D. E. Eyles and N. Coleman.—p. 483.
Antitubercular Activity of Hydrazine Derivatives of Phenolic Acids and Aldehydes. T. S. Ma and J. M. Tien.—p. 491.
Alternate Metabolic Pathways in Streptomycin Sensitive and Resistant Strains of Escherichia Coli. E. I. Rosanoff and M. G. Sevag.—p. 495.
Antialgal Properties of Various Antibiotics. M. J. Foter, C. M. Palmer and T. E. Maloney.—p. 505.
Nature of Polymyxin Activity Against Gram-Positive Organism. R. E. Rhodes, O. A. Vila and R. J. Ferlauto.—p. 509.
Study of Growth Response of Some Fungi to Various Concentrations of Isonicotinic Acid Hydrazide. F. W. Bieberdorf.—p. 513.
Effect of Some Antibiotics on Clostridium Botulinum. A. A. Andersen, H. D. Michener and H. S. Olcott.—p. 521.
Effect of Antibiotics on Growth Rate and Intestinal Flora of Swine. L. Y. Quinn, C. D. Story, D. V. Catron and others.—p. 527.
Chemical Assay for Neomycin. J. D. Dutcher, N. Hosansky and J. H. Sherman.—p. 534.
Cup-Plate Method for Determination of Erythromycin Concentrations in Serum and Other Body Fluids. A. Kirshbaum, F. W. Bowman, D. M. Wintermere and E. R. Friedman.—p. 537.
Stability Studies of Penicillin Products. F. H. Buckwalter and R. Holleran. —p. 540.

Fungistatic Activity of Parabens.—The overgrowth of fungi following the extended use of antibiotics has attracted wide attention. The use of esters of parahydroxybenzoic acid (the parabens) as effective, nontoxic fungistatic agents has been suggested and has met with some success in combating monilial overgrowth when combined with aureomycin. The studies described by Siegel were undertaken to clarify the fungistatic action of methyl and propyl paraben against the common dermatophytes, including those fungi with a tendency to multiply abnormally following the use of antibiotics. Sabouraud's dextrose broth (containing 1% peptone and 2% dextrose) at pH 5.7, autoclaved for 20 minutes at 15 lb., was used for

---

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individual subscribers, provided they reside in continental United States or Canada. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover only the last 11 years, and no photoduplication services are available. No charge is made to members, but the fee for other borrowers is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

be used in the test. Methylparaben- .S.P., and a combination of four parts part of the latter, by weight, were used. ctiveness of the parabens in low concen- r very low toxicity and lack of interference otic action of aureomycin, penicillin, and neo- d make them of particular interest in future preparations.

Ser Sickness Following Oxytetracycline Therapy.—A 10-year-old girl was in good health until an upper respiratory infection developed with headache and fever. She was given oxytetracycline (Terramycin) and Empirin No. 1 compound (containing codeine phosphate, acetophenetidin, caffeine, and acetylsalicylic acid). Two days later, on Feb. 19, 1952, small, pink, pruritic, erythematous wheals appeared that enlarged to form giant serpigenous lesions with clearing in the center. These were distributed all over her body and were of the erythema multiforme type of urticaria. There was also severe angioedema of the eyes and the face. She exhibited cyanosis of the extremities and of the lips and ears. On Feb. 21, fever and anorexia were noted. Her pulse was 120 per minute and temperature 101 F. Urticaria and lymphadenophy were noted. On Feb. 23, she appeared seriously ill, and was hospitalized. She responded well to symptomatic treatment and was discharged from the hospital six days later. The authors believe that this is the first recorded case of this type of reaction to oxytetracycline.

Kansas Medical Society Journal, Topeka

54:201-248 (May) 1953

Management of Interstitial Cystitis. J. I. Waller.—p. 201.
Treacherous Right Colon. W. G. Cauble.—p. 204.
Histoplasmosis: Review of Literature and Report of Two Sisters Having Pulmonary Evidence of Disease. V. G. Henry Jr.—p. 207.
*Significance of Solitary, Asymptomatic, Intrathoracic Coin Lesion. M. L. Shiney and P. A. Harris.—p. 213.

Significance of Intrathoracic Coin Lesions.—The term coin lesion is used to describe a roughly spherical, well-circumscribed intrathoracic nodule seen on roentgenographic examination. Such lesions may be solitary or may be accompanied by other evidence of pulmonary disease; they may be symptomatic or asymptomatic. The final diagnoses of 137 patients with solitary asymptomatic pulmonary coin lesions from five different series are reported. A total of 131 of these patients were subjected to exploratory thoracotomy. Twenty-nine, or 21.2%, were found to have bronchiogenic carcinoma and 2.9% sarcomas. Another 11.7% had premalignant lesions (hamartomas, chondromas, and adenomas). Thus a total of 35.8% of the patients were harboring malignant or potentially malignant lesions. Proved or suspected tuberculous lesions constituted another 27% of the cases. Pulmonary carcinoma has no definite roentgenographic pattern, and there is no criterion that will always enable the examiner to deduce the cause of a roentgenographic density. The presence of calcium in the lesion may be considered suggestive of a tuberculous or histoplasmic lesion or of a premalignant process such as a chondroma or dermoid cyst. Caution must be exercised in arriving at such a diagnosis, since calcification within a malignant lesion is not unknown. Cavitation occurs in both malignant and benign lesions. Only rarely do roentgen rays outline the shadow of the tumor itself. The density is usually representative of the atelectatic result of neoplastic growth. Where atelectasis exists, infection usually follows, and the administration of antibiotics may diminish roentgenographic evidence of the tumor but at the same time have no effect on the fundamental disease process. The decrease in size of a pulmonary shadow after administration of antibiotics must never be considered as proof that the pulmonary disease is infectious in origin. When malignant disease cannot be ruled out, an exploratory thoracotomy must be done. The percentage of patients subjected to undesirable surgery will be small, because some benign lesions, such as adenomas and chondromas, are premalignant and should be resected. Many more lesions are tuberculomas, and since they are often refractory to medical therapy, the consensus is that surgical excision is the treatment of choice. The surgical risk in exploratory thoracotomy is less than 1%.

Kentucky State Medical Assn. Journal, Bowling Green

51:181-228 (May) 1953

Endocrinology, Phases of Gynecology. W. O. Johnson.—p. 181.
Pancreatitis. J. B. Floyd Jr., F. B. Moosnick and C. N. Floyd.—p. 187.
Breast Cancer: Study of Ten Year Results. L. W. Frank.—p. 189.
Management of Casualties in Korea. F. E. Hagman.—p. 193.
Rationale of Prostatectomy. R. Lich Jr.—p. 204.
Problem Confronting Rural Kentucky Medical Scholarship Fund. R. F. Dixon.—p. 206.

Louisiana State Medical Society Journal, New Orleans

105:135-170 (April) 1953

Recent Advances in Treatment in Field of General Surgery. W. C. Quinn.—p. 135.
Therapeutic Advances in Gastroenterology: Anticholinergic Drugs; Motility Studies Evaluating Prantal. G. McHardy and J. E. Bechtold. —p. 139.
Id.: II. (A) Antibiotics; (B) Corticotropin and Cortisone. G. McHardy, J. E. Bechtold and D. C. Browne.—p. 147.
*Preliminary Report on Clinical Experiences with Hexamethonium and 1-Hydrazinophthalazine in Treatment of Diastolic Hypertension. R. B. Romney, R. H. Bullington, J. A. Abildskov and others.—p. 153.
Recent Advances in Cancer Diagnosis. R. M. Shushan.—p. 157.

Hexamethonium and Hydralazine in Diastolic Hypertension.—Hexamethonium chloride alone or combined with hydralazine was given a therapeutic trial in 30 patients between the ages of 27 and 67 with severe diastolic hypertension. The patients were treated on the wards and in the outpatient department of a large general hospital. The blood pressure of the patients varied from 170 mm. to more than 300 mm. Hg systolic and 100 to 180 mm. Hg diastolic. The commonest symptoms were headache, dizziness, visual difficulties, palpitation, and symptoms of congestive heart failure. The patients were given 250 mg. of hexamethonium, orally every six hours. If the blood pressure failed to decline or decreased only slightly and if toxic side-effects did not occur within one to three days, the dose was increased to 250 mg. every four hours, then to 500 mg. every six hours, then to 500 mg. every four hours. The maximal dose reached 1,750 mg. every four hours. When the dose of hexamethonium reached 750 to 1,000 mg. every four hours without a satisfactory blood pressure response, hydralazine (Apresoline) was added in doses of 25 mg. every six hours. This was increased up to 100 mg. every four hours if necessary. In 21 of the 30 patients there was at least an initial good response. In 6 of the 21 patients the blood pressure returned to hypertensive levels and they were classified as therapeutic failures despite adequate dosage of the drug. There were six other patients in whom blood pressure was not controlled, but these did not receive adequate doses. Fourteen patients had good symptomatic improvement and seven moderate symptomatic improvement. There was no evidence of significant change in the symptoms of the remaining nine patients. In all patients followed for more than four months blood pressure has returned to hypertensive levels despite continued therapy, but in some this may have been due to inadequate therapy. In some instances the addition of hydralazine effected a fall in blood pressure when hexamethonium alone failed to do so. Blood pressure reduction and symptomatic relief tended to occur simultaneously, but in some patients symptomatic relief occurred without a change in blood pressure. It appears that these drugs will have at least a temporary place in the management of hypertension, but optimal dosage and criteria for selection of patients are not yet entirely evident.

Michigan State Medical Society Journal, Lansing

52:465-568 (May) 1953

General Considerations in Geriatrics. F. A. Weiser.—p. 497.
Effect of Longevity on Basic Structures. K. L. Swift.—p. 499.
Proper Examination of an Older Person. P. C. Gittins.—p. 501.
Treatment of the Elderly Patient. A. H. Price.—p. 502.
Arthritis and Geriatrics. J. J. Lightbody.—p. 506.
Hospital Care for Chronically Ill. R. M. Athay.—p. 509.
Some of Problems Encountered in Setting Up Rehabilitation Center. F. C. Swartz.—p. 511.
Plan for Living in Later Years. H. W. Woughter.—p. 513.
Value of Periodic Health Examination. W. S. Reveno.—p. 516.
Social Impact of Longevity. C. Sellers.—p. 520.
Upon Considering My Age. J. M. Dorsey.—p. 523.
Spontaneous Rupture of Inferior Epigastric Artery. M. M. Silverman and G. L. Reno.—p. 532.

New England Journal of Medicine, Boston

248:797-836 (May 7) 1953

•Collection, Preservation and Transfusion of Platelets: With Special Reference to Factors Affecting the "Survival Rate" and Clinical Effectiveness of Transfused Platelets. M. Stefanini and W. Dameshek. —p. 797.
Use of Levo-Dromoran Tartrate (Levorphan Tartrate) for Relief of Postoperative Pain. R. D. Hunt and F. F. Foldes.—p. 803.
Therapeutic Effect of ACTH in Stevens-Johnson Syndrome (Erythema Multiforme Exudativum). R. VanderMeer, D. E. Wilson and J. B. Bulthuis.—p. 806.
•Adrenocortical Function in Anorexia Nervosa Before and After Lobotomy. M. D. Altschule.—p. 808.
Spatial Vectorcardiography: Review and Critique. L. Wolff, J. L. Richman and A. M. Soffe.—p. 810.
Perforation of Aorta by Benign Esophageal Ulcer. G. L. Nardi.—p. 820.

Collection, Preservation, and Transfusion of Platelets.—During the past three years studies were conducted on 83 patients who received a total of 216 platelet transfusions by three different methods: administration of polycythemic blood or plasma directly, with the use of multiple silicone-coated syringes; transfusion of blood or plasma from polycythemic donors, collected in and administered by plastic sets or silicone-coated glass bottles and plastic tubing, acid citrate dextrose solution, or 1% disodium salt of ethylenediamine tetraacetic acid (Sequestrene) being employed as anticoagulants; administration of concentrates of platelets, isolated by complete separation of plasma through low-speed centrifugation of whole blood collected by gravity in silicone-coated glassware and with Sequestrene disodium as the anticoagulant and resuspended with isotonic sodium chloride or other solution. Forty-five patients had idiopathic thrombocytopenic purpura, 33 "amegakaryocytic" secondary thrombocytopenic purpura, and 5 "hypersplenic" thrombocytopenic purpura. Together with studies in vivo, observations were made on the preservation of platelets in vitro, as indicated by their ability to correct the coagulation defect and the deficient clot retraction of human platelet-poor plasma. As judged by rate of survival of injected platelets, by their ability to correct the hemostatic defect of thrombocytopenic patients in vivo and the coagulation abnormality of platelet-poor plasma in vitro, the various recently developed methods for the transfusion of large numbers of platelets and for their separation and concentration were not equally effective. The best method of administration of platelets seems to be the direct transfusion of polycythemic blood with the use of multiple silicone-coated syringes. Slightly less effective is the administration of blood collected in completely plastic or silicone-coated sets, by means of acid citrate dextrose solution or the calcium complexing agent Sequestrene disodium as anticoagulant. Platelets separated and suspended in their own plasma or isolated by various procedures and resuspended in isotonic sodium chloride or other solution show markedly reduced survival times in vivo, but their favorable influence on the hemostatic mechanism and the bleeding manifestations of thrombocytopenic patients is still noticeable. The introduction of agents giving glass and metal the properties of nonwettable surfaces and of surface-active agents preventing irreversible agglutination of platelets has greatly favored the development of methods for the collection, separation, and administration of platelets. The survival rate of platelets administered directly as platelet-rich polycythemic blood into patients with secondary thrombocytopenic purpura is four or five days. It is drastically reduced when a transfusion reaction occurs; when acute, uncontrollable bleeding is present; in patients with pronounced splenomegaly; in patients with idiopathic thrombocytopenic purpura, especially of the acute type; and as a result of the development of platelet agglutinins in patients who have received multiple platelet transfusions. The last finding indicates a potentially significant limitation to the use of platelets transfusions in the treatment of thrombocytopenic states.

Adrenocortical Function in Anorexia Nervosa.—Adrenocortical function was studied in a 19-year-old girl with anorexia nervosa when the patient weighed 75 lb. (34.1 kg.) and again two months after partial lobotomy, when she weighed 110 lb. (50 kg.). The increase in weight was due to increased food intake, especially of carbohydrates. Blood eosinophil counts made before the surgical intervention and after it did not show significant difference. The intramuscular injection of 25 mg. of corticotropin (ACTH) before the lobotomy caused a decrease of 75% in the blood eosinophil count in four hours. Intramuscular injection of 0.01 mg. of epinephrine per kilogram of body weight resulted in a fall of 55% in the count in four hours. Measurements of 17-ketosteroid output some weeks before the operation yielded values of 2.6 mg. on the average per 24 hours, while values after the operation averaged 13.5 mg. per 24 hours. The fasting blood sugar level was between 81 and 98 mg. per 100 cc. before the operation and 95 mg. two months after the operation. Blood sugar levels after ingestion of 100 gm. of glucose were abnormally high before the operation; ingestion of 100 gm. of glucose after intramuscular injection of 25 mg. of corticotropin (ACTH) revealed an even more abnormal curve. Two months after the operation, at a time when the patient had eaten large amounts of sweets for some weeks, the glucose tolerance curve was observed to be normal. The urinary estrogen excretion was 99 mcg. per 24 hours two months after lobotomy. These data show that adrenocortical function and reactivity are not depressed in anorexia nervosa. Lobotomy in the patient reported caused clinical improvement; no increase in adrenocortical activity occurred with improvement.

Pediatrics, Springfield, Ill.

11:425-568 (May) 1953

Experiences Gained in 30 Year Study of Prematurely Born Infants. J. H. Hess.—p. 425.
Nitrogen Utilization in Caloric Insufficiency. W. M. Cox Jr., R. C. Ellingson and A. J. Mueller.—p. 435.
Massive Hydrops of the Gallbladder Producing Pyloric Obstruction in a Seven Year Old Boy. C. M. Lee Jr. and G. S. Englender.—p. 449.
Hematologic Adjustments to Cyanotic Congenital Heart Disease. A. M. Rudolph, A. S. Nadas and W. H. Borges.—p. 454.
Third Generation Syphilis: Report of Probable Case. P. M. Wright and T. Inoue.—p. 465.
Measles Encephalitis. G. Solomons, C. A. Markman and E. J. West. —p. 473.
Report of Three Cases of Idiopathic Familial Hyperlipemia: Use of ACTH and Cortisone. A. L. Gaskins, R. B. Scott and A. D. Kessler. —p. 480.
Public Health Aspects of Problems of Current Interest in Neonatal Pediatrics. L. Baumgartner.—p. 489.
Clinical Diagnosis of Generalized Cytomegalic Inclusion Disease. R. D. Mercer, S. Luse and D. H. Guyton.—p. 502.

Science, Washington, D. C.

117:517-540 (May 15) 1953. **Partial Index**

Reversed Phase Paper Chromatography of Parathion and Related Phosphate Esters. R. L. Metcalf and R. B. March.—p. 527.
Dependence of Secondary Sex Ratio in Humans on Age of Father. E. Novitski.—p. 531.
•Excessive Intake of Vitamin A as Cause of Congenital Anomalies in Rat. S. Q. Cohlan.—p. 535.

Congenital Anomalies in Rats Following Excessive Vitamin A Intake.—In experimental studies of the effect of vitamin A during pregnancy, 150 female rats of the CF Wistar strain were fed the standard Rockland pellet diet and water. From the 2nd, 3rd, or 4th to the 16th day post coitus 100 of these rats were given 35,000 I.U. of vitamin A in 0.7 ml. of diluent via a stomach tube. The 50 remaining rats served as controls and were fed 0.7 ml. of diluent. Excessive intake of vitamin A during gestation resulted in a reduction in the number of litters carried to term. Of 50 control females, 44 produced litters with a total of 410 normal newborn, a successful pregnancy rate of 88%. Of 100 females in the experimental group, only 10 carried young to term, with a total of 74 offspring, a successful pregnancy rate of 10%. Of 74 offspring produced in these 10 litters, 34 had a gross anomaly of the skull and extrusion of the brain. In the control group no anomalies were noted in 410 offspring. Other anomalies noted in the experimental litters were macroglossia, harelip, cleft palate, and gross defects in eye development. Comparable cranial anomalies have been produced in mice by other teratogenic methods, such as hypoxia.

FOREIGN

Journal of Laryngology and Otology, London

67:177-232 (April) 1953

Restoration of Function After Large Operations About the Face and Jaws. F. Coffin.—p. 177.
Some Diagnostic and Aetiological Aspects of Aural Cholesteatoma. J. A. Harpman.—p. 189.
Bucco-Pharyngeal Ulcerations of Undetermined Aetiology. K. Harrison.—p. 197.

67:233-300 (May) 1953

Comparison Between Hearing for Pure Tones and for Speech. T. Cawthorne and R. M. Harvey.—p. 233.
Technique of Speech Audiometry and Simple Speech Audiometer with Masking Generator for Clinical Use. J. J. Knight and T. S. Littler.—p. 248.
Endoscopic Diagnosis of Early Bronchial Carcinoma. F. Eeman.—p. 266.
Some Observations on Surgery of Maxillary Antrum. A. R. Dingley.—p. 277.
Ligation of Carotid Vessels. P. H. G. Wood.—p. 284.

Minerva Medica, Turin

44:959-994 (April 14) 1953

Physiopathological and Therapeutic Activity of Natural Amino Acids. F. Vacirca.—p. 959.
*Mechanism of Action of Tissue Therapy. P. Li Voti.—p. 968.
Tetrahydrofurfuryl Nicotinic Acid Ester in Some Cases of Peripheral Vascular Disease. G. P. Vecchi and V. Rubbiani.—p. 975.
Action of Isoniazid on Hematogenous Tests in Tuberculous Patients and Healthy Persons. M. Capello and R. Rossi.—p. 987.

Mechanism of Action of Tissue Therapy.—The results of the author's experiments on rabbits revealed that placental grafts or injections of placental extracts cause changes in the neurohormonal relationships that resemble those produced by corticotropin (ACTH). This therapy has a stimulating action on the adrenal glucorticoid secretion; since it does not involve the hypophysis and differs from the action of corticotropin, the stimulation is of an adrenocortical nature. The results suggested also that besides Filatov's "biogenous stimulators" there are probably some growth substances in the placental tissue that enhance proliferation. Because this therapy causes a deficiency of ascorbic acid in the adrenal gland, concurrent administration of this vitamin is a good adjuvant. The author reports clinical results with this therapy in 50 patients, of whom 25 were treated with grafts alone. In the other 25 the grafts were followed immediately by intramuscular or intravenous injections of 1 gm. of ascorbic acid daily for 15 days. There was a rapid and definitive remission of the symptoms in patients with acute rheumatism treated with grafts alone or with the combined treatment. The patients with chronic rheumatism and anatomic osteoarticular alterations improved rapidly and markedly, but the symptoms reappeared 15 to 20 days later when the grafts were completely absorbed. The patients with hypertension and hypotension received no benefit from the treatment. Good results were obtained in patients with ulcerative wounds, but there was a relapse as soon as the grafts were completely absorbed. A greater sensitivity to other forms of therapy, even if they had failed in the past, was seen in all these patients after the treatment with placental tissue or placental extracts was terminated.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

97:985-1044 (April 18) 1953. **Partial Index**

Tularemia After Eating a Hare. G. D. Hemmes.—p. 990.
*Administration of Partly Purified Liver Extract in Cirrhosis of Liver. J. Schouten.—p. 998.
Placenta Praevia Accreta: Case. A. J. J. M. Lindner.—p. 1003.

Liver Extract in Cirrhosis of Liver.—A man, aged 36, with hepatic cirrhosis of several years' duration was incapacitated because of the severity of the disease. Treatment with vitamins A, C, and D, with yeast and with 3 gm. of methionine daily produced only slight improvement. He resumed his work for about seven weeks, but had to be hospitalized once more, when he was given intravenous injections of unpurified liver extract. On the 1st day he was given 1 cc. of the extract in 25 cc. of isotonic sodium chloride solution; on the 2nd day 3 cc. in 30 cc. of solution; on the 3rd and 4th days 5 cc. in 40 cc. of solution; and from the 5th to the 14th days 10 cc. daily in 50 cc. of isotonic sodium chloride solution. After that he was given the 10 cc. dose three times a week until a total of 224 cc. of the extract had been administered. This exhausted the supply for the time being. At follow-up visits the patient said that he felt well and was able to be up and about and do some work. The tests of the hepatic function showed great changes. When several months later a new supply of the liver extract became available, he was given another course of injections. After that he felt so much improved that he was able to work, and the liver function tests indicated objective improvement.

South African Medical Journal, Cape Town

27:293-316 (April 11) 1953. **Partial Index**

*Immunization Against Diphtheria: Booster Dose. J. H. Mason and M. Robinson.—p. 293.
Negative Cercarial Antigen Skin Tests in Proved Urinary Bilharziasis in Children. H. I. Lurie, B. De Meillon, N. Stoffberg and H. H. Eiselen.—p. 295.

Booster Dose in Immunization Against Diphtheria.—The need for a booster dose of prophylactic diphtheria toxoid cannot be overstressed if the circulating antitoxin is to be maintained at an adequate level. Children usually tolerate a 10 Lf to 25 Lf dose of formaldehyde-toxoid or of alum-precipitated toxoid, but the occasional adolescent or adult who is sensitive to toxoid or to bacillary protein contaminating the toxoid may react severely to even a small dose of purified toxoid. One of the authors had been immunizing Schick-positive student nurses with 25 Lf of dissolved diphtheria toxoid-antitoxin floccules adsorbed on aluminum phosphate followed in six weeks with 25 Lf of unadsorbed dissolved floccules. At the time of the Schick and Schick control tests, the nurses received 0.5 Lf of unadsorbed dissolved floccules intracutaneously for checking their sensitivity to this antigen. Those with no reaction received 25 Lf more subcutaneously as a booster dose, but this was not given to those with a pseudo Schick reaction and/or with a reaction to the unadsorbed dissolved floccules. An antitoxin assay was made in such persons 14 days later, and all had adequate amounts of circulating antibodies at this time. This suggested that 0.5 Lf of unadsorbed dissolved floccules had acted as a booster and gave hope that it would have a similar effect in persons with negative Schick reactions; if such is the case, no further immunization would be necessary. Tests were carried out in student nurses and in adult volunteers. There was a history of immunization dating back 1 to 14 years in approximately 50% of them. Blood was taken, and immediately afterwards Schick toxin, Schick control fluid (heated toxin), and 0.5 Lf of unadsorbed dissolved floccules were injected intracutaneously into separate sites in the forearms. A second sample of blood was taken 14 to 21 days later from those who had negative Schick reactions or who had shown a pseudo reaction or a reaction to the dissolved floccules on the fourth day. The antitoxin content of the serums was determined, and showed that 0.5 Lf of unadsorbed dissolved floccules is a satisfactory booster dose in persons with negative Schick reactions, pseudo reactions to the Schick and Schick control tests, and local reactions to the dissolved floccules, a total of 104 persons in all. It had no demonstrable boosting effect on the circulating antitoxin of nine adults with positive Schick reactions, two of whom were known to have been immunized in the past.

Tubercle, London

34:127-150 (May) 1953

Study of Reproduction of Tubercle Bacillus. E. M. Brieger and A. M. Glauert.—p. 128.
Tuberculin Sensitivity in Royal West African Frontier Force (Gold Coast). K. S. Henley, J. A. Tallack and G. M. A. Turner.—p. 139.
Tuberculous Bronchitis of Bronchial Stump. A. H. C. Couch.—p. 141.
Acquired Hypersensitivity to Sodium PAS and Streptomycin. S D. Rowlands.—p. 143.
Patient with Torsion of Spleen: Complicating Pneumoperitoneum Treatment. O. E. Fisher and G. B. Lord.—p. 144.

BOOK REVIEWS

Conferences on Drug Addiction among Adolescents. Conferences were held at New York Academy of Medicine on November 30, 1951, and March 13 and 14, 1952, and were sponsored by Committee on Public Health Relations of New York Academy of Medicine, with assistance of Josiah Macy Jr. Foundation. Cloth. $4. Pp. 320. Blakiston Company (division of Doubleday & Company, Inc.), 575 Madison Ave., New York 22, 1953.

This book is a verbatim account of a series of conferences sponsored by the Committee on Public Health Relations of the New York Academy of Medicine, with financial assistance of the Macy Foundation. The 52 participants included representatives from the judiciary, the police, the New York City administration, the New York State Department of Health, the U. S. Public Health Service, the U. S. Bureau of Narcotics, and pharmacologists, social scientists, and social workers. Drug addiction was regarded as a serious problem because more than 3,000 arrests had been made last year, which was five times the number in 1946. The situation was discussed in general terms, and then the conference turned to action being taken to remedy the situation and how this might be improved. Methods of handling addicts as well as methods of prevention through education were discussed in detail. This book need not be read by all doctors, but it will be of great value to the responsible officials of any community confronted with the problem of drug addiction among adolescents.

Handbuch der inneren Medizin. Begründet von L. Mohr und R. Staehelin. Herausgegeben von G. v. Bergmann, W. Frey und H. Schwiegk. Band III: Verdauungsorgane. Teil 1. Bearbeitet von A. Gigon, G. Katsch, M. Lüdin, und H. Pickert. Teil 2. Bearbeitet von W. Baumann, et al. Fourth edition. Cloth. 328 marks. Pp. 941, with 283 illustration; 1293, with 229 illustrations. Springer-Verlag, Reichpietschufer 20, (1) Berlin W. 35 (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, 1953.

The third volume of this book, revised and reedited by three well-known internists, covers diseases of the digestive tract and is published in two sections, the first containing 941 pages, the second, 1,293 pages. In the first part, pages 814 to 941 cover the literature on the subjects considered in the volume. In the second part, pages 1009 to 1116 cover the literature and the remaining 176 pages are devoted to name and subject indexes that cover both volumes. The work is, therefore, not a handbook in the American sense but is a well-documented system of medicine differing from most American books in that each subdivision, infectious diseases, for example, can be bought separately.

The first article covers diseases of the mucous membrane of the mouth and is written by Alfred Gigon, who also contributes the article on diseases of the salivary glands. Diseases of the esophagus are covered by Max Ludin and diseases of the stomach by Gerhardt Katsch and Heinz Pickert. The object of the work is obviously to cover all subjects in a systematic manner, for the clinical discussions are preceded by a survey of the anatomy and physiology, at times, of the embryology, topography, bacteriology, and pharmacology, and, sometimes, by a brief historical note. Most sections begin with a discussion of congenital anomalies and acquired deformities; then come types of inflammation due to different organisms; tumors; mechanical, thermic, and chemical injuries; functional disturbances; and miscellaneous conditions such as calculi, fistulas, cysts, and accessory and aberrant glands. This system also differs from the American system in the extensive discussion of technical diagnostic procedures applicable to the different systems and diseases.

The second part contains articles on diseases of the intestines by Norbert Henning and Walther Baumann, who also contribute the section on diseases of the peritoneum. Diseases of the pancreas are covered by G. Katsch and M. Gülzow. Diseases of the liver and biliary passages are discussed by K. Beckmann.

The quality of the articles is excellent; they are comprehensive, methodical, and written in clear German, and the documentation contains numerous references, mainly to German and American literature. The two parts of the volume are separately bound in substantial dark blue cloth. The typography and paper are excellent, and there are 283 illustrations, the black and white ones in the form of graphs, outline drawings, photographs of patients or lesions, and excellent reproductions of roentgenograms. There are many good color illustrations, particularly in the sections on gastroscopy and enteroscopy. There is little to criticize except perhaps a tendency to omit some of the earlier literature. The system can be recommended as a storehouse of valuable information.

Clinical Cardiology. Edited by Franklin C. Massey, A.B., M.D., Assistant Professor of Medicine, Hahnemann Medical College, Philadelphia. Cloth. $13.50. Pp. 1100, with illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1953.

The editor has attempted to present aspects of cardiology not ordinarily covered in the textbooks of heart disease. The special problems related to the heart in the fields of pediatrics, anesthesiology, obstetrics, and psychiatry have been assigned to collaborators. The usual subject matter such as electrocardiography, roentgenography, and diagnosis and treatment of disorders commonly classified as cardiac is also included. As is often noted when there are many contributors, the chapters are not uniformly good. The editor states in the preface that controversial items are purposely included. If such were the intention, all sides of a controversial problem should have been presented. For instance, the chapter on treatment of congestive heart failure is written by Schemm, who presents mainly his own theory of edema formation and method of treatment, even though it is not accepted by cardiologists generally. Two excellent chapters deserve special mention: one on cardiac surgery by Bailey, Glover, O'Neill, and Wells, and the other on cardiac arrhythmias by Di Palma.

At the beginning of each chapter a brief biography of the author is given. Some of the authors have not been active in research in the fields assigned to them, as indicated by a lack of reference to their own work in the bibliographies that follow each chapter. Their chapters lack the freshness and spontaneity found when the author is actively engaged in research on the subject about which he writes. Illustrations and figures are adequate and in general are well chosen. Even though the book is not of uniform excellence, it should make a good reference book on cardiology for the general practitioner and the medical student. The specialist in the field of cardiology would probably prefer to consult original material or monographs.

Die Röntgenuntersuchung der Harnorgane: Lehrbuch. Von Dr. med. O. Kneise, a. o. Professor der Urologie an der Martin-Luther-Universität Halle-Wittenberg, und Dr. med. K. L. Schober, Facharzt für Urologie, chirurgische Universitäts-Klink, Halle, Saale. Fourth edition. Cloth. 32 marks. Pp. 280, with 323 illustrations. Georg Thieme, Thomas-kirchhof 21, (10b) Leipzig, C.1, 1952.

This brief monograph on roentgenologic examination of the urinary organs was intended as a textbook and as a guide to interpretation of urographic deformities caused by lesions in this tract. As the authors state, the circle of those interested would include not only urologists, but roentgenologists, internists, and various surgical specialists. The monograph contains only 323 illustrations, including drawings, abstract sketches, roentgenograms, and urograms. They portray the usual deformities seen with lesions in the urinary tract. The book is not a complete atlas of such deformities. It contains clinical discussions with most of the urograms, which take up a large part of the book, and offers additional information of questionable value to the main subject. While the text is written in an interesting and readable manner, it adds comparatively little to our present knowledge of the subject.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

QUERIES AND MINOR NOTES

SCHOOL VISION SURVEYS

To the Editor:—*Is it essential that mydriatics be instilled in the eyes of children when they are fitted with glasses for the correction of visual defects? In our public health program, we conduct school vision surveys, and I insist that children requiring correction of visual defects be referred to qualified ophthalmologists. While several counties in my district have no ophthalmologists, most are well supplied with optometrists. Actual examination of the eyes and prescription of glasses for children and young adults should, in my opinion, be done by well-trained ophthalmologists.*

M.D., Georgia.

Answer.—Recent textbooks on ophthalmology by medical authors recommend the use of cycloplegia for refraction of the eyes of children under age 12 years, especially if there is associated strabismus. Adequate cycloplegia and mydriasis are desirable but perhaps not necessary in all patients under age 46 who possess an effective power of accommodation. In patients 40 years and older, it is often possible to perform an adequate refraction and examination without the use of cycloplegics. For satisfactory examination of the eyes of children with high refractive errors, mydriatics are not sufficient, and frequent instillations of strong cycloplegics in high concentrations may be required. Cycloplegics can lawfully be employed in refraction only by medically trained specialists and hence are not utilized by optometrists. Medical authorities advocate the use of atropine as a cycloplegic in all children up to age 12 or 13. After this, 2% homatropine may be used in place of atropine, up to age 30. In school surveys routine use of mydriatics is not practical. Several methods of screening have been devised for selection of pupils who should be referred for special eye examinations and fitting of glasses. Visual tests can be made by teachers, nurses, trained technicians, and parents by one or more of several methods advocated by manufacturers of special equipment. A study of the methods used in 1950, 1951, and 1952, supported by the National Society for the Prevention of Blindness, the Children's Bureau of the Federal Security Agency, the division of health of the state of Missouri, the St. Louis board of education, and the Office of Naval Research, showed that none of the methods studied provides for more than rough screening. The proportion of unnecessary referrals varies little with the method of screening employed and the experience of the person doing the testing. A positive finding of a visual defect in a child is not justified on the basis of a screening test. A complete eye examination, including refraction, testing of muscle balance, field testing, and ophthalmoscopic examination with mydriasis and cycloplegia, is advocated by ophthalmologists, who, as implied in the question, are medical authorities.

SCARS ON EYELIDS OF BOXERS

To the Editor:—*A 27-year-old colored boxer complains of being easily cut about his eyelids while boxing. There is a recent scar of the left upper lid that he wishes to have excised, because it broke down in his last three bouts. I do not feel that surgery would be of any benefit, as the scar tissue is barely palpable. Is incision of scar tissue done to decrease the possibility of cutting from buried scar tissue?*

Adolph W. Vogel, M.D., Ardmore, Pa.

Answer.—This fighter probably resumed boxing before the wound was completely healed. A minimum healing period of two months should be allowed after such injuries. No chemicals, astringents, or lotions should be applied topically, because of the danger of damage to the lid or cornea, but the lid may be massaged with rose water ointment, theobroma oil (cocoa butter), or hydrous wool fat (lanolin) three times daily, not to toughen the scar but to render it more supple. Since no scar tissue was palpated, excision or plastic surgery need not be considered at this time; however, any excess scar tissue should be completely excised and the wound margins meticulously sutured, care being taken to avoid producing ectropion of the lid. Should a defect exist after excision of the scar, a full thickness skin graft may be sutured in place.

PREGNANCY AFTER YEARS OF STERILITY

To the Editor:—*A couple had had no children for years, and it was thought that the husband was sterile. After an examination done elsewhere, the husband was told that he had a high percentage of immobile spermatozoa. The wife had been taking iodine, and she persuaded her husband to take some. Within two months she became pregnant. The iodine was not taken for this specific reason but as a general tonic. Could the iodine have brought about a change in spermatogenesis?* *Robert L. Rice, M.D., Richmond, Ky.*

Answer.—The active principle of thyroid is thyroxin. Iodine is an essential part of thyroxin. The gonads often are underdeveloped and the gonadotropic factors suppressed in hypothyroidism, with resultant sterility. Fertility often can be restored in these cases by administration of thyroid. The effect on the gonad seems to take place through action on the pituitary. It is interesting to note in this connection that the aborigines were convinced that their women of marriageable age had to have access to seafood to assure fertility. High in the Andes, girls of marriageable age and pregnant mothers were fed fish eggs obtained on expeditions made regularly to the ocean for this purpose. These fresh eggs have a high vitamin and iodine content. These mountain people had learned through the centuries that seafood contains some element necessary to conception and to the maintenance of pregnancy.

PROCAINE AMIDE (PRONESTYL) HYDROCHLORIDE

To the Editor:—*A 45-year-old man who had myocardial infarction was given procaine amide (Pronestyl) hydrochloride, 0.25 gm. every four hours from the third day of the infarction, to prevent paroxysmal ventricular tachycardia. Such an arrhythmia did develop, however, on the 25th postinfarction day. There had been no prior arrhythmia. A cardiologist said this was a toxic effect of the procaine amide. Please discuss this. The patient died suddenly three days later, after quinidine therapy had converted the heart rhythm to normal.*

Rider E. Stockdale, M.D., Jasper, Texas.

Answer.—Procaine amide is a new therapeutic agent with all of the pharmacological effects of quinidine, including all the toxic effects except cinchonism. Ventricular fibrillation and tachycardia have been observed following the intravenous administration of procaine amide but, so far as is known, not following oral administration, except at much higher dosage levels. Quinidine has been given to large series of patients with myocardial infarction as a prophylactic measure against arrhythmia, with apparently good results, and an extension of this treatment with procaine amide appears logical. In the absence of an autopsy, it would not be possible to determine whether the patient's death was the result of a subsequent coronary occlusion or of a pulmonary embolism arising from a mural thrombus. The risk of either of these complications might have been reduced by the use of anticoagulant therapy.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, MAY-AUGUST 1953

Titles have been listed or abstracts made of important articles in the following journals in the Current Medical Literature Department of THE JOURNAL during the past four months. Any of the journals, except those starred, will be lent by THE JOURNAL to individual subscribers in Continental United States and Canada and to members of the American Medical Association and its student organization. No charge is made to members, but the fee for other borrowers is 15 cents in stamps for each periodical. Three journals may be borrowed at a time for a period not exceeding five days. Requests should be addressed to the Library of the American Medical Association. Thus most of these journals are accessible to the general practitioner.

*A. M. A. American Journal of Diseases of Children. Chicago.
*A. M. A. Archives of Dermatology and Syphilology. Chicago.
*A. M. A. Archives of Industrial Hygiene and Occupational Medicine. Chicago.
*A. M. A. Archives of Internal Medicine. Chicago.
*A. M. A. Archives of Neurology and Psychiatry. Chicago.
*A. M. A. Archives of Ophthalmology. Chicago.
*A. M. A. Archives of Otolaryngology. Chicago.
*A. M. A. Archives of Pathology. Chicago.
*A. M. A. Archives of Surgery. Chicago.
Acta allergologica. Copenhagen.
Acta cardiologica. Brussels.
Acta chirurgica belgica. Brussels.
Acta chirurgica scandinavica. Stockholm.
Acta endocrinologica. Copenhagen.
Acta haematologica. Basel.
Acta medica orientalia. Jerusalem.
Acta medica scandinavica. Stockholm.
Acta neurologica et psychiatrica belgica. Brussels.
Acta tuberculosea scandinavica. Copenhagen.
American Heart Journal. St. Louis.
American Journal of Clinical Pathology. Baltimore.
American Journal of Digestive Diseases. Fort Wayne, Ind.
American Journal of the Medical Sciences. Philadelphia.
American Journal of Medicine. New York.
American Journal of Mental Deficiency. Albany, N. Y.
American Journal of Obstetrics and Gynecology. St. Louis.
American Journal of Ophthalmology. Chicago.
American Journal of Orthopsychiatry. New York.
American Journal of Pathology. Ann Arbor, Mich.
American Journal of Physical Medicine. Baltimore.
American Journal of Physiology. Washington.
American Journal of Psychiatry. New York.
American Journal of Psychotherapy. New York.
American Journal of Public Health. New York.
American Journal of Roentgenol. and Radium Therapy. Springfield, Ill.
American Journal of Surgery. New York.
American Journal of Syphilis, Gonor. and Venereal Diseases. St. Louis.
American Journal of Tropical Medicine and Hygiene. Baltimore.
American Practitioner and Digest of Treatment. Philadelphia.
American Review of Tuberculosis. New York.
American Surgeon. Atlanta, Ga.
Anesthesiology. New York.
Angiology. Baltimore.
Annales chirurgiae et gynaecologiae Fenniae. Helsinki.
Annals of Allergy. Minneapolis.
Annals of Internal Medicine. Lancaster, Pa.
Annals of Otology, Rhinology and Laryngology. St. Louis.
Annals of Physical Medicine. London.
Annals of the Rheumatic Diseases. London.
Annals of Surgery. Philadelphia.
Antibiotics and Chemotherapy. Washington, D. C.
Archiv für Hygiene und Bakteriologie. Munich.
Archiv für klinische Chirurgie. Berlin.
Archiv für Kreislaufforschung. Darmstadt.
Archiv für orthopädische und Unfall-Chirurgie. Munich.
Archiv für Psychiatrie und Nervenkrankheiten. Berlin.
Archives of Disease in Childhood. London.
Archives des maladies du coeur et des vaisseaux. Paris.
Archives of Pediatrics. New York.
Archives of Physical Medicine and Rehabilitation. Chicago.
Archivio italiano di urologia. Bologna.
Archivio di tisiologia (Scientific Section). Naples.
Archivos de pediatría del Uruguay. Montevideo.
Archivum chirurgicum neerlandicum. Arnhem.
Arizona Medicine. Phoenix.
Arquivos de neuro-psiquiatria. São Paulo.
Ärztliche Forschung. Munich.
Ärztliche Wochenschrift. Berlin.
Bacteriological Reviews. Baltimore.
Beiträge zur Klinik der Tuberkulose. Heidelberg.
Belgisch tijdschrift voor geneeskunde. Leuven.
Blood. New York.
Bordeaux chirurgical. Bordeaux.
Brain. London.
British Heart Journal. London.
British Journal of Cancer. London.
British Journal of Dermatology. London.
British Journal of Experimental Pathology. London.
British Journal of Industrial Medicine. London.
British Journal of Nutrition. London.
British Journal of Ophthalmology. London.
British Journal of Plastic Surgery. Edinburgh.
British Journal of Radiology. London.
British Journal of Surgery. Bristol.
British Journal of Tuberculosis. London.
British Journal of Urology. London.
British Journal of Venereal Diseases. London.
British Medical Journal.. London.
Bruxelles-médical. Brussels.
Bulletin of the Johns Hopkins Hospital. Baltimore.
Bulletin of the Los Angeles Neurological Society. Los Angeles.
Bulletin of the World Health Organization. Geneva.
California Medicine. San Francisco.
Canadian Medical Association Journal. Montreal.
Cancer. Philadelphia.
Cancer Research. Chicago.
Circulation. New York.
Clinica. Bologna.
Connecticut State Medical Journal. Hartford.
Cuore e circolazione. Rome.
Delaware State Medical Journal. Wilmington.
Deutsche medizinische Wochenschrift. Stuttgart.
Deutsche Zeitschrift für Nervenheilkunde. Berlin.
Deutsche Zeitschrift für Verdauungs- und Stoffwechselkrankheiten. Leipzig.
Diabetes. New York.
Día médico. Buenos Aires.
Die Medizinische. Stuttgart.
Diseases of Chest. Chicago.
Edinburgh Medical Journal. Edinburgh.
Endocrinology. Springfield, Ill.
Eye, Ear, Nose & Throat Monthly. Chicago.
Fortschritte auf dem Gebiete der Röntgenstrahlen vereinigt mit Röntgenpraxis. Stuttgart.
Gastroenterology. Baltimore.
Gazzetta medica italiana. Milan.
Geburtshilfe und Frauenheilkunde. Stuttgart.
Geriatrics. Minneapolis.
Glasgow Medical Journal. Glasgow.
GP (Journal of American Academy of General Practice). Kansas City, Mo.
Gynaecologia. Basel.
Hawaii Medical Journal. Honolulu.
Helvetica paediatrica acta. Basel.
Hoja tisiológica. Montevideo.
Hospital. Rio de Janeiro.
Illinois Medical Journal. Chicago.
Indian Journal of Surgery. Madras.
Industrial Medicine and Surgery. Chicago.
International Archives of Allergy & Applied Immunology. Basel.
International Journal of Leprosy. New Orleans.
Irish Journal of Medical Science. Dublin.
Journal of Allergy. St. Louis.
Journal of the American Geriatrics Society. Baltimore.
Journal of the American Medical Woman's Association. New York.
Journal of Applied Physiology. Washington, D. C.
Journal of Arkansas Medical Society. Fort Smith.
Journal of Aviation Medicine. St. Paul.
Journal of Bacteriology. Baltimore.
Journal of Bone and Joint Surgery. Boston and London.
Journal de chirurgie. Paris.
Journal of Clinical Endocrinology and Metabolism. Springfield, Ill.
Journal of Clinical & Experimental Psychopathology. Washington, D. C.
Journal of Clinical Investigation. New York.
Journal of Clinical Nutrition. Allentown, Pa.
Journal of Clinical Pathology. London.
Journal of Endocrinology. London.
Journal of Experimental Medicine. New York.
Journal of the Florida Medical Association. Jacksonville.
Journal of Gerontology. St. Louis.
Journal of Hygiene. London.
Journal of Immunology. Baltimore.
Journal of the Indiana State Medical Association. Indianapolis.
Journal of Infectious Diseases. Chicago.
Journal of International College of Surgeons. Chicago.
Journal of Investigative Dermatology. Baltimore.
Journal of the Iowa State Medical Society. Des Moines.

---

* Cannot be lent.

Journal of the Irish Medical Association. Dublin.
Journal of the Kansas Medical Society. Topeka.
Journal of the Kentucky State Medical Association. Bowling Green.
Journal of Laboratory and Clinical Medicine. St. Louis.
Journal of Laryngology and Otology. London.
Journal of the Maine Medical Association. Portland.
Journal de médecine de Lyon. Lyon.
Journal of the Medical Association of the State of Alabama. Montgomery.
Journal of the Medical Association of Georgia. Atlanta.
Journal of Medical Education. Chicago.
Journal of the Medical Society of New Jersey. Trenton.
Journal of Mental Science. London.
Journal of the Michigan State Medical Society. Lansing.
Journal of National Cancer Institute. Washington, D. C.
Journal of the National Medical Association. New York.
Journal of Nervous and Mental Disease. New York.
Journal of Neurology, Neurosurgery and Psychiatry. London.
Journal of Neuropathology and Experimental Neurology. Baltimore.
Journal of Neurophysiology. Springfield, Ill.
Journal of Neurosurgery. Springfield, Ill.
Journal of Nutrition. Philadelphia.
Journal of Obstetrics and Gynaecology of the British Empire. Manchester.
Journal of the Oklahoma State Medical Association. Oklahoma City.
Journal of Pathology and Bacteriology. Edinburgh.
Journal of Pediatrics. St. Louis.
Journal of Pharmacology and Experimental Therapeutics. Baltimore.
Journal of the Philippine Medical Association. Manila.
Journal of Physiology. Cambridge.
Journal of the South Carolina Medical Association. Florence.
*Journal of the Student American Medical Association. Chicago.
Journal of the Tennessee State Medical Association. Nashville.
Journal of Thoracic Surgery. St. Louis.
Journal of Tropical Medicine and Hygiene. London.
Journal d'urologie médicale et chirurgicale. Paris.
Journal of Urology. Baltimore.
Journal-Lancet. Minneapolis.
Klinische Wochenschrift. Berlin.
Lancet. London.
Laryngoscope. St. Louis.
Laval médical. Quebec.
Lille chirurgical. Lille.
Louisiana State Medical Society Journal. New Orleans.
Lyon chirurgical. Lyon.
Maandschrift voor kindergeneeskunde. Leyden.
Marquette Medical Review. Milwaukee.
Maryland State Medical Journal. Baltimore.
Medical Annals of the District of Columbia. Washington.
Medical Journal of Australia. Sydney.
Medicina. Buenos Aires.
Medicina contemporânea. Lisbon.
Medicine. Baltimore.
Mental Hygiene. Albany, N. Y.
Metabolism. New York.
Military Surgeon. Washington, D. C.
Minerva chirurgica. Turin.
Minerva ginecologica. Turin.
Minerva medica. Turin.
Minerva pediatrica. Turin.
Minnesota Medicine. St. Paul.
Missouri Medicine. St. Louis.
Münchener medizinische Wochenschrift. Munich.
Nebraska State Medical Journal. Lincoln.
Nederlandsch tijdschrift voor geneeskunde. Amsterdam.
Neurology. Minneapolis.
New England Journal of Medicine. Boston.
New Jersey Medical Society Journal. Trenton.
New York State Journal of Medicine. New York.
New Zealand Medical Journal. Wellington.
Nordisk medicin. Stockholm.
North Carolina Medical Journal. Winston-Salem.
Northwest Medicine. Seattle.
Obstetrical & Gynecological Survey. Baltimore.
Obstetrics and Gynecology. New York.
Ohio State Medical Journal. Columbus.
Pediatrics. Springfield, Ill.
Pédiatrie. Lyon.
Pennsylvania Medical Journal. Harrisburg.
Physiological Reviews. Baltimore.
Plastic & Reconstructive Surgery. Baltimore.
Policlinico (Practical Section). Rome.
Postgraduate Medicine. Minneapolis.
Practitioner. London.
Prensa médica argentina. Buenos Aires.
Presse médicale. Paris.
Proceedings of Royal Society of Medicine. London.
Proceedings of the Society for Experimental Biology and Medicine. Utica, N. Y.
Proceedings of Staff Meetings of Mayo Clinic. Rochester, Minn.
Progresso medico. Naples.
Psychiatric Quarterly. Utica, N. Y.
Psychiatry. Washington, D. C.
Psychoanalytic Quarterly. Albany, N. Y.
Psychoanalytic Review. Albany, N. Y.
Psychosomatic Medicine. New York.
Public Health Reports. Washington, D. C.
Quarterly Journal of Medicine. Oxford.
Quarterly Journal of Studies on Alcohol. New Haven, Conn.
Radiology. Syracuse, N. Y.
Review of Gastroenterology. New York.
Revista argentina de dermatosifilologia. Buenos Aires.
Revista clínica española. Madrid.
Revista española de pediatría. Zaragoza.
Revista médica de Chile. Santiago.
Revue neurologique. Paris.
Rhode Island Medical Journal. Providence.
Riforma medica. Naples.
Rivista di clinica pediatrica. Florence.
Rivista italiana di ginecologia. Bologna.
Rivista di ostetricia e ginecologia. Florence.
Rocky Mountain Medical Journal. Denver.
Sang. Paris.
Scalpel. Brussels.
Schweizerische medizinische Wochenschrift. Basel.
Science. Washington, D. C.
Semana médica. Buenos Aires.
Semaine des hôpitaux de Paris. Paris.
South African Medical Journal. Cape Town.
South Dakota Journal of Medicine and Pharmacy. Sioux Falls.
Southern Medical Journal. Birmingham, Ala.
Southwestern Medicine. El Paso, Texas.
Strahlentherapie. Munich.
Surgery. St. Louis.
Surgery, Gynecology and Obstetrics. Chicago.
Surgical Clinics of North America. Philadelphia.
Texas Reports on Biology and Medicine. Galveston.
Texas State Journal of Medicine. Fort Worth.
Thorax. London.
Tidsskrift for den norske lægeforening. Oslo.
Transactions of the Royal Society of Tropical Medicine and Hygiene. London.
Tubercle. London.
Tuberkulosearzt. Stuttgart.
Tunisie médicale. Tunis.
Ugeskrift for læger. Copenhagen.
United States Armed Forces Medical Journal. Washington, D. C.
University of Michigan Medical Bulletin. Ann Arbor, Mich.
Virginia Medical Monthly. Richmond.
Western Journal of Surgery, Obstetrics and Gynecology. Portland, Ore.
West Virginia Medical Journal. Charleston.
Wiener klinische Wochenschrift. Vienna.
Wiener medizinische Wochenschrift. Vienna.
Wisconsin Medical Journal. Madison.
World Medical Association Bulletin. New York.
Yale Journal of Biology and Medicine. New Haven.
Zeitschrift für die gesamte innere Medizin. Leipzig.
Zeitschrift für Geburtshilfe und Gynäkologie. Stuttgart.
Zeitschrift für klinische Medizin. Berlin.
Zeitschrift für Krebsforschung. Berlin.
Zentralblatt für Arbeitsmedizin und Arbeitsschutz. Darmstadt.
Zentralblatt für Gynäkologie. Leipzig.

SUBJECT INDEX

This is an index to all the reading matter in The Journal. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "BI," Bureau of Investigation; "E," Editorial; "C," Correspondence; "ab," abstracts; the asterisk (*) indicates an original article in The Journal.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," and "S." Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

For the author index see page 1803.

A

AAT: See Parathion
ACTH: See Corticotropin
AOC: See Antibiotics
ABDOMEN: See also Ascites; Gastrointestinal Tract; Pelvis
  Adhesions: See Adhesions
  cancer, peritoneoscopy in, [Zoeckler & others] *1617
  pain after appendectomy, (reply) [Dittrich] 566
  pain, (right upper) in salpingitis, [Holm-Nielsen] 1669—ab
  rupture of wall through stria cutis distensa during cortisone or corticotropin therapy, [Lawrence & others] *1526
  surgery: See also Appendectomy; Cesarean Section; Gallbladder
  surgery, antibiotics and, [Brown] 189—ab
  surgery, immediate exploratory laparotomy during active gastrointestinal bleeding. [Bockus & others] *1228
  surgery, laparotomy, postoperative decompression by gastrotomy and Levin tube, [Gilchrist] *232
  surgery, laparotomy, Thorn's test with posterior pituitary extract, [Massone] 769—ab
  surgery, preventing atelectasis or pneumonia after, [Greene] 966—ab
  trauma to wall, acute renal insufficiency after, [Gelfand & Shapiro] *319
  Viscera: See Viscera
  wound disruption, [Schiebel] 1464—ab
ABILITY: See Efficiency; Success
ABNORMALITIES: See also Crippled; under specific organ and region as Heart
  congenital defects due to rubella; preventive use of gamma globulin in pregnancy, [Miralbell-Andreu] 1486—ab
  congenital, in rats, after excessive vitamin A, [Cohlan] 1735—ab
  genes and mermaids: causation of congenital abnormalities, 1131—ab
  in fetus from viral diseases in pregnancy, [Kaye] 85—ab
ABORTION
  etiology: exposure to lead, 1494
  habitual, frequency, Chile, 547
  incomplete, laboratory tests in, 776
  potassium in anuric tubular nephropathy after, [Dérot] 978—ab
ABRASION: See Trauma
  Therapeutic: See Sandpaper
ABRUZZI, W. A., Jr., tuberculosis among American medical students, 922—E; [Miller] 1554—C
ABSCESS: See also Ulcers; under organ affected as Brain; Lungs; Tonsils
  infected pilonidal, trypsin injection for, [Innerfield & others] *597
  subphrenic: See Diaphragm
ABSENTEEISM
  Industrial: See Industrial Health workers absenteeism
ABSORPTION: See Cartilage implants
ACADEMY: See also under names of specific academies as National Academy; New York Academy; list of Societies at end of letter S
  of Dermatology and Syphilology, symposium on industrial dermatology, 923—E
  Prizes awarded by various academies: See Prizes
ACANTHOLYSIS bullosa: See Epidermolysis bullosa
ACANTHOSIS
  nigricans (benign), benoquin for, [Lerner & Fitzpatrick] *577
ACCIDENTS: See also Trauma; Wounds
  Automobile: See Automobiles
  fatal bicycle accidents in children, U. S., 923—E
  fatal, in preschool children, (England) 1228—ab; (1901-1951, England) 1549; (U. S.) 1642
  Fourth of July, statistics on, and transportation of fireworks, [Lull] 168
  home fatalities in Britain, 1058; 1549
  Industrial: See Industrial Accidents
ACCIDENTS—Continued
  Prevention: See also National Safety Council
  prevention, courses, in, N. Y., 1541
  Traffic: See Automobiles
ACETANILID
  poisoning (chronic) with esophageal ulcer from Yum, [Wolfson & Greenberg] *910
ACET-DIA-MER-SULFONAMIDES
  N.N.R. (Hexad of Bowman) 332
ACETYLCHOLINE
  drugs affecting skeletal muscle, 495—ab
diACETYL MORPHINE: See Morphine
ACHALASIA: See Stomach cardiospasm
ACID
  acetic, biosynthesis of cholesterol, 1435—E
  acetylsalicylic, aspirin effect on rheumatic fever, [Clark] 1265—ab; (correction) 1724
  acetylsalicylic, aspirin poisoning in young child, [Gardner] 975—ab
  acetylsalicylic, repeated dosage for cancer, 1413—ab
  acetylsalicylic, treatment of periarteritis nodosa, [Dent] 1733—ab
  p-aminosalicylic, hypopotassemia with hypertension due to, [Jones] 1488—ab
  p-aminosalicylic, plus isoniazid and streptomycin in tuberculosis, [Mount] 1464—ab
  p-aminosalicylic plus streptomycin for endometrium tuberculosis, 1584
  p-aminosalicylic, plus streptomycin in pulmonary tuberculosis, [Swedish National Association] 93—ab; [Trendelburg] 365—ab
  p-aminosalicylic, plus streptomycin, roentgen evaluation, [Pitts & others] *887
  p-aminosalicylic, severe hypersensitivity simulating mononucleosis or hepatitis, [Lichtenstein & Cannemeyer] *606
  p-aminosalicylic, special solution, hemolytic anemia after ingesting, [Lust] 1281—ab
  p-aminosalicylic, treatment, glycosuria and hyperglycemia after, [Robel] 1488—ab
  p-aminosalicylic treatment, hypokalemia during, [McIntyre] 967—ab
  p-aminosalicylic treatment of brucella infections, [Terni] 193—ab
  p-aminosalicylic, treatment of urogenital tuberculosis, [Cibert] 1077—ab
  p-aminosalicylic, vs. isoniazid, in tuberculosis, London, 548
  Ascorbic: See also Calcium ascorbate; Sodium ascorbate
  ascorbic, administration of iron; which form is best tolerated by intestines? 1393
  ascorbic, adrenocortical response to, in children vs. adults, [Sprechler] 1275—ab
  ascorbic, biosynthesis of cholesterol, 1435—E
  ascorbic, deficiency effect on healed wounds (scar tissue), 334—E
  ascorbic, mechanism of Filatov's tissue therapy, [Li Voti] 1736—ab
  ascorbic, meralluride with, evaluate diuretics given orally, [Greiner & Gold] *1130
  ascorbic—U.S.P. N.N.R., (Sherman) 332
  Carbolic: See Phenol
  Cevitamic: See Acid, ascorbic
  folic, antagonists plus steroid hormones for acute leukemia, [Magnin] 364—ab
  glutamic, treatment of epilepsy, [Putnam & Rothenberg] *1400
  guanidineacetic, and betaine treatment of poliomyelitis, [Watkins] 1471—ab
  hydrochloric, administration of iron: which form is best tolerated by intestines? 1393
  hydrofluoric, burns, treatment with "triple dyes" and calcium gluconate locally, 1493
  iodoalphionic (Priodax), pseudoalbuminuria after ingestion, [Seedorf & others] *1332
  iodopanoic (Telepaque), pseudoalbuminuria after, [Seedorf & others] *1332
  Isonicotinic Hydrazide: See Iproniazid; Isoniazid
  lysergic thylamide, for mental disorders, [Solms] 1487—ab
  nicotinic, biosynthesis in animal tissues, Italy, 1453
  Nicotinic, diethylamide of: See Nikethamide
  panthothenic, biosynthesis of cholesterol, 1435—E
ACID BASE BALANCE: See Acidosis
ACIDOSIS: See also Ketosis
  hyperchloremic, after ureterosigmoidostomy, 334—E
ACNE
  problem, [Becker] 478—ab
ACOSTA, J. del C., appointed president of Confederación Médica Panamericana, 753
ACROCEPHALY (oxycephaly)
  surgical treatment: creating movable "cranial ribs," [Desbuquois] 1574—ab
ACRODERMATITIS
  enteropathica, diodoquin for, [Dillaha & others] *509; (correction) 1643
ACROMEGALY
  secondary joint involvement, Primer on Rheumatic Diseases, *530
ACROPARESTHESIA
  in 51 year old woman, 374
ACROPATHY
  ulceromutilating, familial ulcerative disease of extremities, Belgium, 350
ACTA: See Journals
ACTH: See Corticotropin
ACTINOMYCES, Antibiotic Prepared from: See Streptomycin
ACTINOMYCOSIS
  accidental transmission from man to man, 1394
  in Mexico, 1360
  of spine, 401—ab
ACTIVITY
  Following operation or illness; See Convalescence
ADAMANTINOMA
  of mandible, 881
ADAPTATION
  syndrome, [Selye] *1207
ADDICTION: See Alcoholism; Cannabis Sativa; Narcotics
ADDISON'S ANEMIA: See Anemia, Pernicious
ADDISON'S DISEASE
  diagnosis, desoxycortisone acetate in, [Michon] 97—ab
  treatment, licorice and cortisone in, [Borst] 1383—ab
  treatment, licorice, (biochemists discuss) 74; [Card] 1383—ab
ADDRESSES: See Lectures
ADENITIS: See Lymphatic System
ADENOCARCINOMA
  of uterine corpus, 499—ab; 996—ab
ADENOMA
  multiple, involving parathyroids, pituitary and pancreatic islets, [Underdahl] 89—ab
  Nontoxic, of Thyroid: See Goiter
  of head of pancreas, surgery for hypoglycemia due to, [Voszschulte] 283—ab
  solitary, benign of thyroid, 1583
  solitary of bronchi, resection for, [Hood & others] *1185
  Toxic, of Thyroid: See Goiter, Toxic
ADENOMYOSIS: See Endometriosis
ADHESIONS
  intestinal obstruction from, [Parker] 1267—ab
  intestinal, preventing with streptokinase, streptodornase, and pancreatic enzymes, [Cavallini-Francolini] 1078—ab
  traumatic autoplastic implants of splenic tissue, [Berry & Erdman] *1227
ADIPHENINE
  treatment of peptic ulcer, 1289
ADIPOSITY: See Obesity
ADOLESCENCE
  Personal Health for Girls (film review), 648
  Personal Hygiene for Boys (film review), 648
  pseudoprecocious puberty from taking estrogens in girl of 4, [Cook] 1471—ab
ADRENALECTOMY: See Adrenals, surgery
ADRENALIN: See Epinephrine
ADRENALS: See also Addison's Disease
  Adrenocorticotropic Hormone: See Corticotropin
  adrenogenital syndrome before and after taking cortisone, [Franckson] 1573—ab
  celiac accessory, [Graham] 88—ab
  Cortex Compound E: See Cortisone
  cortex failure (acute) cause of shock and death, [Taylor] 1266—ab

ADRENALS—Continued
  cortex, function in anorexia nervosa, [Altschule] 1735—ab
  cortex, function in premature infants, [Lanman] 363—ab
  cortex, function measured with ACTH, 1129—ab
  cortex, hormonal cause of cardiac hypertrophy, [von Metzler] 93—ab
  cortex insufficiency, emergency treatment, 1494
  cortex, postoperative insufficiency, in patients previously treated with cortisone, [Salassa & others] *1509
  cortex, response to corticotropin, cortisone, and ascorbic acid in children vs. adults, [Sprechler] 1275—ab
  Cortex Hormone (Crystalline): See Desoxycorticosterone
  hemorrhage, apoplexy during corticotropin therapy of ulcerative colitis, [Wilson & Roth] *230
  hemorrhage, spontaneous idiopathic bilateral apoplexy with hypertension, [Greene] *133; (additional case report) [Salomon] 871—C; (comment on Dr. Greene's article) [Bauer] 961—C
  Hormone (Sympathetic): See Epinephrine
  insufficiency, desoxycortisone acetate in diagnosis, [Michon] 97—ab
  steroids and corticotropin in alcoholism, [Voegtlin] 1074—ab
  surgery, adrenalectomy for thromboangiitis, [Tingaud] 875—ab
  surgery, late complementary adrenalectomy in thromboangiitis after sympathectomy, [Leriche] 1077—ab
  surgery, remission of Cushing's syndrome after bilateral hemiadrenalectomy, [Kupperman] 361—ab
  surgery, subtotal adrenalectomy for Cushing's syndrome, [Walters] 357—ab
  tumors, pheochromocytoma; clinicopathological study, surgery successful, Brazil, 1451
  tumors, pheochromocytoma, hemiplegia from, [ReMine & others] *808
ADRENERGIC BLOCKING AGENTS
  Phentolamine Hydrochloride, N.N.R., (description) 1533; (Ciba) 1534
  Phentolamine Methanesulfonate, N.N.R., (description) 1534; (Ciba) 1535
ADRENOCORTICOTROPIC HORMONE: See Corticotropin
ADVERTISING
  Alameda County Medical Society, on medical care, [Allen] *658
  chlorophyll as deodorant, [Thimann] 869—C
  of medical products, A.M.A. resolution on, 844; (Reference Committee report) 1053
  television and radio, portrayal of physicians in, 822—E; (A.M.A. resolutions on) 847, 848
ADVISORY
  Committee on Internships, Council report, 829
AEROMEDICINE: See Aviation medicine
AERONAUTICS: See Aviation
AEROSOLS
  Administration by: See Antibiotics; Isoniazid
AEROSPORIN: See Polymyxin B Sulfate
AEROTITIS: See Otitis Media
AFIBRINOGENEMIA: See Blood
AFTERBIRTH: See Placenta
AGE
  Adolescent: See Adolescence
  distribution of nursing home patients, [Goodman] *1337
  grand mal seizures in patients over 35, [Berlin] *794
  Old Age: See Old Age
AGENE: See Nitrogen trichloride
AGGLUTINATION
  of erythrocytes, effect of antihistamines on, [Lucia] 1468—ab
AGGLUTININS
  cold, acute thrombopenic purpura with autoagglutination; antiplatelet agglutinin, [Dausset] 1487—ab
  Rh: See Rh Factor
  typhoid, in trichinosis, [Kushlan] *221
AGGLUTINOGEN
  Rh: See Rh Factor
AGRANULOCYTOSIS
  etiology: methimazole, [Rosenbaum & Reveno] *27
  etiology: phenylbutazone (butazolidin), fatal case, [Steinberg & others] *33
  etiology: phenylbutazone; precautions suggested, [Strazza] 183—C
  etiology: sulfisoxazole, [McCluskey] *232
  granulocytopenia caused by drug idiosyncrasy, (Council report) [Osgood] *816; 823—E
  treatment, corticotropin, [McCluskey] *232; [Schulten] 1480—ab
AGRICULTURE: See Farm; Farmers
AIR: See also Humidity; Oxygen
  conditioning, treatment of miliaria, [Shelley] *670
  drying (mechanical) of hands after preoperative scrubbing, [Walker] 974—ab
  Dust in, as Industrial Hazard: See Pneumoconiosis
AIR—Continued
  Embolism: See Embolism
  exposure to, in treatment of burns in children, [Taylor] 366—ab; 910—ab; [Artz] 1370—ab
  Injection: See Pneumoperitoneum; Pneumothorax, Artificial
  mask for giving, [Stodsky] *1714
  Pollution Control Association, 340
  Presence of Air in Cavity: See Pneumothorax
  research, grant for, N. Y., 1154
AIR FORCE: See Aviation, U. S. Air Force
AIR PASSAGES: See Respiratory System
AIRPLANES: See Aviation
ALAMEDA County Medical Society, [Allen] *658
ALARM
  electric automatic, conditioned response to, to control nocturnal enuresis, [Geppert] *381; [Fischer] 1732—C
ALASKA
  health problems, grant for study, Pa., 1248
ALBUMIN
  in Blood: See Blood proteins
  in Urine: See Albuminuria
  necessity for adding to serum in crossmatching, [Grove-Rasmussen] 92—ab
  Radioactive Iodinated: See Blood proteins
ALBUMINURIA
  telepaque and pseudoalbuminuria, [Seedorf & others] *1332
ALCOHOL
  Addicts: See Alcoholism
  Antabuse Reaction: See Alcoholism
  injection (intravenous) effect on cerebral blood flow and metabolism, [Battey & others] *6
  Propyl: See Isopropyl Alcohol
  studies, conference on, Wis., 746
  tobacco amblyopia, [Maxwell] 1176—ab
  treatment, danger of combining morphine with, Denmark, [Møller] 288—ab; 352
  use by ulcer patients, 774
  Yale Center of Alcohol Studies, industrial institute, Conn., 1152
ALCOHOLISM: See also "Drunkenness" under Medicolegal Abstracts at end of letter M
  clinic for alcoholics, N. Y., 858
  death from morphine in persons under influence of alcohol, [Møller] 288—ab; 352
  delirium tremens, methods of treatment, [Smith] *384
  diagnosis, blood alcohol determinations, 6 to 8 hours after blood is drawn, 483
  effect on cerebral blood flow and metabolism, [Battey & others] *6
  Mallory-Weiss syndrome, 1292
  Portal House moves, Ill., 1054
  problem drinkers, 140—ab
  treatment, adrenal steroids and corticotropin, [Voegtlin] 1074—ab
  treatment, antabuse-alcohol reaction, toxic signs; electrocardiographic changes, [Markham & Hoff] *1597
  treatment, care of alcoholics, Finland, 958
ALDRIN (Octalene)
  Committee report on names for insecticides, *819
ALIENS: See Physicians, foreign
ALIMENTARY TRACT: See Digestive System; Gastrointestinal System
ALKALOSIS: See Acidosis
ALKAPTONURIA: See Ochronosis; Urine
ALKAVERVIR (Veriloid)
  treatment plus hexamethonium bromide in hypertension, Israel, 260
ALLEN (Raymond B.) Award: See Prizes
ALLEN Starvation Treatment: See Diabetes Mellitus, treatment
ALLERGY: See also Asthma; Dermatitis venenata; Eczema; Hay Fever; Urticaria
  A.M.A. Session on, (minutes) 933
  antagonistic to diabetes, [Gutmann] 1572—ab
  atopic dermatitis caused by inhalant antigens, [Diamond] 1465—ab
  automobile accidents due to, 296
  booster tetanus injection advisable in allergic child? 1084
  conditions in industry, prevention and control, [Suskind] 967—ab
  course on allergic disease at Hopital Broussais, Paris, 1443
  diagnosis, multiple positive reactions to allergic skin tests, 1498
  fellowship in, at Northwestern, 536
  mucoproteins of nasal mucosa of patients, [Rappaport] 88—ab
  preleukemic acute human leukemia, [Block & others] *1018
  regional enteritis, [Rowe] 1664—ab
  sensitivity to _p_-aminosalicylic acid simulating mononucleosis or hepatitis, [Lichtenstein & Cannemeyer] *606
  sensitivity to cigarette smoke, [Friedell] *897
  sensitivity to cinnamon oil in tooth paste cause of cheilitis, [Laubach & others] *404
  sensitivity to contrast materials during excretory urography, 655
  sensitivity to corticotropin: aplastic anemia, [Snively & others] *1223
ALLERGY—Continued
  sensitivity to cottonseed, 775
  sensitivity to drugs; crossed allergies, Italy, 181
  sensitivity to drugs, hypoplastic anemias and related syndromes caused by, (Council report) [Osgood] *816; 823—E
  sensitivity to dust and feathers in sinusitis, 1676
  sensitivity to fiberglas, 1290
  Sensitivtiy to Food: See Food
  sensitivity to "improved" flour, London, 353; [Pollock] 1066—C; [Sheldon] 1179—ab
  sensitivity to influenza virus prepared from egg material, 775
  sensitivity to insulin, (reply) [Dolger] 296
  sensitivity to penicillin: anaphylactic shock, [Nikishin] 1473—ab
  sensitivity to penicillin fatal in asthma, [Curphey] 1564—ab
  sensitivity to penicillin, nonfatal and fatal _reactions, [Feinberg & others] *114; (correction)_ 344
  sensitivity to penicillin, severe immediate constitutional fatal reaction, [Sohval] *1430
  sensitivity to phenobarbital as syndrome, [McGeachy] 1657—ab
  sensitivity to procaine hydrochloride with 3 fatalities, [Davis & Bryce-Smith] 477—C; [Ryan & Shouldice] 1554—C
  sensitivity to protamide, [Zdanis] 1461—ab
  sensitivity to rubber bands, green painted pencils and liquid soap in office workers, [Morris] *1218
  sensitivity to streptokinase-streptodornase solution given intrapleurally, [Goehring & Grant] *1429
  sensitivity to sulfobromophthalein liver test, near fatal reaction, [McVay] *1622
  sensitivity to tubocurarine and decamethonium in myasthenia gravis, [Pelikan] 1173—ab
  serum neuritis, [Watkins] 1371—ab
  serum neuritis after using antitetanic serum, [Garvey] 363—ab
  serum reaction (convulsions) in infant after injecting diphtheria-tetanus toxoids and pertussis vaccine, 1289
  serum sickness after oxytetracycline, [Johnston] 1734—ab
  serum sickness, cerebral complications, [Park] 1173—ab
  serum sickness, Primer on Rheumatic Diseases, *531
  sinusitis followed by nasal polyp _formation_, 1676
  skin reaction to procaine amide hydrochloride, [Koffler] *28
  skin tests in atopic disease, [Engelsher] 355—C
  speech disorders ever have allergic basis? 1678
  treatment, desensitization in hay fever relation to eosinophil counts, [Dragsted] 1475—ab
  treatment, desensitizing injections given by nurse, 1678
  treatment, wasp and bee desensitization, _104_
  tuberculin, detection, Paris, 1651
  Who Is Who in Allergy, directory of allergists, 174
ALLETHRIN (Presyn: Allycinerin)
  A.M.A. Committee report on names for insecticides, *819
ALLMAN, DAVID B.:
  statement before House Committee on income tax deduction of medical expenses, 1149
  statement before House Committee on reorganization of U. S. Department of Defense, 1150
ALLTOX: See Toxaphene
ALLYCINERIN: See Allethrin
N-ALLYLNORMORPHINE Hydrochloride: See Nalorphine Hydrochloride
ALMAGUCIN (Mucotin)
  N.N.R., (Harrower) 333
ALOPECIA
  in acrodermatitis enteropathica, treated with diodoquin, [Dillaha & others] *509; (correction) 1643
  leprotica; custom of shaving scalp of newborn, [Cleve & Pruitt] *573; [Reiss] 1652—C
  not caused by fluorescent lighting, 296
ALPHA Gamma Delta Fellowship: See Fellowships
ALTITUDE
  High: See also Aviation
  high, effect, International Society discusses, Paris, 74
  high, Mount Everest expedition, London, 1451
ALUDRINE: See Isopropylarterenol
ALUMINUM
  _p_-aminobenzene sulfonate (Sulfalumin), new chemical compound, Mexico, 1359
  carbonate gel, treatment of kidney stones, 1082
  hydroxide gel-U.S.P., N.N.R., (Physicians' Drug) 920
  Hydroxide-Mucin-Magnesium Trisilicate Mixture: See Almagucin

ALVARENGA Award: See Prizes
AMBLYOPIA: See Blindness
AMBULANCES
  rapid air evacuation and mobile army surgical hospital, 1449
  service costs, London, 1650
AMBULATION
  Early: See Convalescence
AMEBACIDES: See Amebiasis, treatment
AMEBIASIS: See also Colitis, amebic
  amebic patient 13 days old, [Welser] 1554—C
  treatment, fumagillin as amebacide, [McHardy], 1567—ab
  treatment; prognosis, [Tucker] 761—ab
AMENORRHEA
  scanty menstruation and hot flashes at 27, 1586
AMERICAN: See also *National*; *Pan American*; United States; list of societies at end of *letter* S
  Academy of Pediatrics, recommendations in *immunization procedures*, [Sauer] *1314
  Ass'n of Medical Record Librarians (essentials for training medical record technicians) *830*; 831
  Board of Internal Medicine, history; examination; certification; standards, [Schnabel] *1590
  Board of Preventive Medicine, (certificate in aviation *medicine*), 477
  Cancer Society (award to Dr. H. Smith, Pa.) 859; (cancer diagnosis) [Cameron] 870—C
  College Health Ass'n (training program for physicians) [Sander] 756—C
  College of Surgeons, (first regional South American Congress, Brazil) 70; (A.M.A. resolution on public relations) 839; (cancer diagnosis) [Cameron] 870—C
  Diabetes Ass'n (blood sugar test in annual physical examinations) [Marks] 882
  Fellowships offered by American societies: See Fellowships
  Foundation: See Foundations
  Gastroenterological Ass'n (surgical aspects of peptic ulcer) 1236—E
  Geographical Society; *geography and disease*, [Karsner] 355—C
  Hospital Ass'n (report of Joint Committee on Hospital-Physician Relationships of Boards of Trustees) 729; 731; (A.M.A. resolution on magazine *Trustee* published by) 844
  Indians: See Indians
  Joint Distribution Committee, (Dr. Schmidt *joins) 1153*
  Korean Foundation: See Foundations
  Legion, (President Martin's page) 824; (address *of* commander, Mr. L. K. Gough), 852; (A. M. A. resolution on), 855
  Medical Education Foundation: See Foundations
  Medical Golfing Assn., 716
  Medical Society of Vienna, [Kline] 184—C; (journals needed for other countries), [Castle] 266—C
  Medicine: See Medicine
  Osteopathic Assn., (report A. M. A. of Committee), 734
  Physicians: See Physicians, American
  Physician's Art Assn., New York meeting, 716
  Prizes offered by American societies: See Prizes
  Psychiatric Assn., (organizations interested in mental health), 48—E; (foundation) 1155
  Public Health Assn., (pamphlet on communicable diseases), 108; (statement on chickenpox period of communicability), 880
  Red Cross: See Red Cross, American
  Rheumatism Assn., PRIMER ON RHEUMATIC DISEASES, (4th edition), *323; *405; *522
  Student Health Assn., (training program for college health physicians), [Sander] 756—C
  University of Beirut, Lebanon, (funds for medical schools), 748; (Dr. McDonald appointed dean), 1154
  Urological Research Foundation, Inc.: See
OCIATION
723; (with respect
airs) (President McCormick's Page) 1239
  Allman (David B.): statements before U. S. House Committee, (on income tax deduction of medical expenses) 1149; (on reorganization of U. S. Department *of Defense*), 1150
  American Medical Education Foundation, [Bauer] 723; (report) 742; (list of donors giving $1,000 or more) 743; (A. M. A. resolution on) 844; ($10,000 gift of Woman's Auxiliary to) 855; (A. M. A. motion of appreciation to the chairman, Dr. Henderson) 856; (2nd annual report reports progress) 1044—E; (correction) 1443
  American Medical Society of Vienna, [Kline] 184—C; [Castle] 266—C
  Annual Meeting: See also subhead New York Meeting
  annual meetings, for 1956, invitation *from* New York and Chicago, 853

AMERICAN MEDICAL ASSOCIATION—Continued
  Archives: See subhead Journals (special)
  Board of Trustees, (established Goldberger Award in cooperation with Nutrition Foundation) 49—E; (report and supplementary report) 727; 729; (financial statement in report of) 729; 743; (place of 1956 annual meeting) 853; (election of new members) 855
  Bureau of Exhibits, (booking of exhibits) 242
  Bureau of Health Education, (Television Award to) 168; (new transcription series) 459
  Bureau of Legal Medicine and Legislation: See Laws and Legislation, state, weekly summary
  Bureau of Medical Economic Research, (Bulletin 94A: How far from a physician) 718; (survey of blood banks) 833; (old and new base periods for medical care price indexes) 1341—E; [Dickinson] *1365; (1952 medical care dollar) 1635—E
  Chemical Laboratory, (study of cigarettes, cigarette smoke, and filters) *917; *1035
  Clinical Meeting: See Denver Clinical Meeting; St. Louis Clinical Meeting
  Committee: See also subheads: Liaison Committee; Reference Committee; Standing Committee
  Committee for Study of Relations Between Osteopathy and Medicine, 734; (Reference Committee reports) 739; 740
  Committee on Awards, (list of medals awarded) 926
  Committee on Blood, (report) 831
  Committee on Cosmetics, list of cosmetics accepted, 1141
  Committee on General Practice Prior to Specialization, (report) 834
  Committee on Legislation, (letters sent by Dr. Lull to congressional committees) 168; (took action on federal legislative measures) 1046; 1240
  Committee on Medical Motion Pictures, (supplement to list of films for television) 54; (television at the University of Kansas Medical Center) [Schafer] *78; (questions on use of medical moving pictures in hospitals) *157; (supplement film catalog now available) 169; (Kansas television experi*ment) [Schafer]* *554
  Committee on Medicolegal Problems (comment on question: can twins have different *fathers?) 199*
  Committee on Mental Health, (mental health activities of state medical associations) 1053
  Committee on Pesticides, (report on toxicology *in* medical curriculum) *709; (report on names for pesticides) *818; (health prob-
migating devices
38—E
See subhead:
  Convention: See subhead: Annual Meeting; New York Meeting
  Council on Constitution and Bylaws, 827; (member elected: Dr. Osborn) 855
  Council on Foods and Nutrition, (trends and needs in nutrition) [Sebrell] *42
  Council on Industrial Health, (need to teach industrial health to medical students) [Kehoe] *1262
  Council on Medical Education and Hospitals, FACTBOOK ON MEDICAL EDUCATION) 54; (hospital service in the U. S., 32nd annual report) *143; 164—E; (list *of* additional internships and residencies approved) 185; (licensure *statistics*; 51st annual report) *415; 456—E; (list of foreign medical schools prepared by) *440; 456—E; (9 physicians *on Council's field staff)* 459; (certification in aviation medicine by American Board of Preventive Medicine) 477; (postgraduate continuation courses for physicians) 612—E; *629; (Dr. Anderson appointed *dean at Rochester)* 745; (report) 828; 831; (essentials for training medical record technicians) 830; 831; (A. M. A. resolution on Dr. Anderson terminating his *position as* secretary) 854; (members *elected) 855*; (additional hospitals registered) 1068; (new secretary: Dr. Edward *L. Turner)* 1244; (Dr. Leveroos appointed Director of Division of Hospitals and Grad*uate Education) 1244*
  Council on Medical Service, (medical care *for* indigent in Richmond, Va.) 268; (*county society* data available) 459; (booklet: "How *to get* a doctor") 459; (conference on physicians placement service activities) 552; (medical care for dependents *of servicemen*) 758; (report) 833; (members *elected*) 855; (survey of prolonged non-occupational illness by Research Council *for Economic* Security) *1457; (Doctor for Your Community) 1538
  Council on National Emergency Medical Service, (civil defense bibliography) 459; (medical civil defense preparedness according to states) 872; (President McCormick's page describes work of) 1239

AMERICAN MEDICAL ASSOCIATION—Continued
  Council on Pharmacy and Chemistry, (revision of N.N.R. statement on testes) 414; (report on toxicology in medical curriculum) 709; (new generic and brand names recognized) 709; (use and abuse of generic or coined common names for pesticides) 818; (hypoplastic anemias and related syndromes caused by drug idiosyncrasy) [Osgood] *816; 823—E; (improved test of spermicidal activity without dilution or mixing) [Gamble] *1037; (postcoital test as method of evaluating contraceptive jelly) [Cohen & Kaye] *1042 (effects of intensive sex steroid hormone therapy in advanced breast cancer) [Kennedy & Nathanson] *1135; (health problems of vaporizing and fumigating devices for insecticides) *1232; 1238—E; (preparation and maintenance of sterile ophthalmic solutions) [Theodore & Feinstein] *1631
  Council on Physical Medicine and Rehabilitation, (power output of diathermy apparatus) *1235
  Council on Rural Health, (bulletin: "Parade of Progress") 459; (booklet: "How to get a doctor") 459
  Council on Scientific Assembly, (members elected to) 855
  Denver Clinical Meeting, (adopted proceedings) 720
  distinguished guests, presentation at New York meeting, 724
  Distinguished Service Medal, awarded to Dr. Alfred Blalock, (biographical sketch; portrait) 614—E; (nominees; election) 720
  Donegan (H. W. B.), invocation by Right Reverend Donegan, 719
  Dues: See subhead: Membership dues
  Exhibits: See also subheads: Scientific Exhibit; Technical Exhibits
  exhibits, demand for; bookings handled through A.M.A. Bureau of Exhibits, 242
  FACTBOOK ON MEDICAL EDUCATION, 54
  Film Library: See subhead: Motion Picture Film Library
  Fund for Medical Education: *See subhead*: American Medical Education Foundation
  golf tournament, New York meeting, 716
  Gough (L. K.), address of commander *of* American Legion, 852; (A.M.A. resolution on) 855
  Hamilton (E. S.) statement before U. S. Congress *on* extension of "Doctor Draft Law," 166
  Henderson (E. L.), motion of appreciation to as chairman *of American Medical Education* Foundation, 856
  history, New York Meeting *in 1853, 712*
  Hobby (Oveta Culp) address of Secretary of U. S. Department of Health, Education, and Welfare, 740
  Hodson (A. L.), legal consultant of A.M.A., introduction, 742
  House of Delegates, (banquet for) 53; (summary of actions of) 712; (abstract of proceedings, June 1-5 1953) 719; 827; (remarks of speaker, Dr. Reuling) 720; ("Your role *as delegate* . . ." booklet) 721; (Reference Committee report) 721; (list of members who have died since 1952 annual *meeting*) *721*; (Johnson resolution on *funding of* policies) 727; 827; (resolution on seating of delegates) 846; (statement regarding action of Board of Trustees in calling special session) 850
  HOW TO GET A DOCTOR, booklet, 459
  Hygeia: See subhead: *Today's Health*
  Joint Committee on Hospital-Physician relationships of *American Hospital* Ass'n. and A.M.A. *729; 731*
  Joint Project of CARE and WHO for medical help for India, *endorsed by AMA*, 1045—E
  journals (*special*), Archives of Internal Medicine, needed for other *countries*, [Castle] 266—C
  Judicial Council, (proposed amendment to bylaws, concerning power of) 835; (election of member: Dr. Woodhouse) 855
  Lahey (F. H.) *address on* National Fund for Medical Education, 853
  Liaison Committee to organizations concerned with care of veterans, (*report*) 732; 733; (Reference Committee reports) 739; 740
  Lull (G. F.), (views on S. 106 *and* S. 1514) 54; (letters to congressional committees regarding fireworks, Indian hospitals and factory inspection) 168
  Medical Public Relations Institute, (program) 1636
  medical schools approved by: Peiping Union Medical College, 186
  membership (affiliate), election to, 855
  membership dues, 728; 729; (excused from paying) 827; (A.M.A. resolution *on* deducting subscription to *Today's Health* from) 843; (A.M.A. resolution *on payment* of delinquent dues) 845
  metric system used by, 1045—E
  Morrissey (E. J.), message from San Francisco, 850
  Motion Pictures: See also subhead: Committee on Medical Motion Pictures

AMERICAN MEDICAL ASSOCIATION—Continued
Motion Picture Film Library, (new pictures added to) 272; 477; 965; 1068
Motion Pictures, films for New York Meeting, 243
Motion Pictures, List of Pictures Reviewed: See Moving Pictures, Medical
motions of appreciation to Councils, Committees, persons and organizations, 855
National Conference on Rural Health, (digest of proceedings) 1538
New York Meeting, (color television) 51; (hotel reservations) 166; 242; 336; (registration information) 242; (tickets for the ballet available) 242; (theater and baseball ticket reservations) 242; (exhibit for medical historians and bibliophiles by New York Historical Society and New York Academy of Medicine) 242; (invitation to visit New York City hospitals) [Kogel] 266—C; (summary of) 712; **(proceedings) 719; 827; 925;** *(statistics on registration) 927*
Officers elected, 712; 855
President Bauer, (address before the House Delegates) 722; (A.M.A. resolution in appreciation of) 852
President-Elect Martin, (portrait) 613—E; (address of acceptance) 856; (statement before U. S. House Committee on income tax deduction of educational expenses) 1150; (statement before U. S. House Subcommittee on *Hospitals* of the Committee on Veterans Affairs) 1342
President McCormick, (delay broadcast of inauguration) 53; (address: American medicine's report to nation) *485; (address before the House of Delegates) 726; (Reference Committee report) 727
President's Page, Monthly Message, (May: Dr. Bauer's farewell) 458; (June: first message from Dr. McCormick) 824; (July) 1239; (August) 1718
Priest (Mrs. I. B.), Treasurer of U. S., remarks, 856
Proceedings of New York Meeting, 719; 827; (Sections) 928
QUARTERLY CUMULATIVE INDEX MEDICUS, *Volume 50, now off press, 1538*
radio program, New York meeting, 716
radio program, "You and the World," on CBS, 243
Reference Committee on Amendments to Constitution and Bylaws, (report) 828; 835; 844; 845; 847; 851
Reference Committee on Hygiene and Public Health, (report) 849; 850; 851; 855
Reference Committee on Insurance and Medical Service, (report) 733; 834; 839; 844; 846; 849
Reference Committee on Legislation and Public Relations, (report) 842; 843; 845; 847; 848; 850; 855
Reference Committee on Medical Education and Hospitals, (report) 731; 831; 834; 837; 844; 846
Reference Committee on Miscellaneous Business, (majority report) 739; (minority report) 740; (report) 828; 833; 837; 838; 843; 847; 848; 849; 850
Reference Committee on Reports of Board of Trustees and Secretary, report, 729; 743; 843; 849; 850; 854
Reference Committee on Reports of Officers, *721; 724; 727*
Reference Committees, list of, also membership, 51; 715
resolution in appreciation of Dr. Bauer, 852
resolution (Johnson) on funding of policies of *House of Delegates, 727; 827*
resolution on advertising of medical products, 844; (Reference Committee report) 1053
resolution on amending federal narcotic act to provide for dispensing codeine mixtures on oral prescriptions, 849
resolution on American Legion Commander on "equalization pay" for physicians, dentists, and veterinarians, 855
resolution on American Medical Education Foundation, 844
resolution on annual Medical Progress Day, 851
resolution on blood banking, 837
resolution on Bricker resolution, 842
resolution on change in make-up of nominating committees of A.M.A. Sections, 851
resolution on clarifying section 5 of Principles of Medical Ethics, 851
resolution on Compact of Western States for Medical Education (S. 1515), 847
resolution on creating *U. S. Department* of Health to be concerned with USPHS and all government hospitals, 845
resolution on Crippled Children's Program, 854; (reply to editorial in *Life* magazine) 1142—E
resolution on definition of medical and dental services, 728; 729; 731
resolution on derogatory article "The Doctor Cartel, and Urgent Problem," in *Home Life,* 847
resolution on diminishing medical services by Veterans Administration, 838

AMERICAN MEDICAL ASSOCIATION—Continued
resolution on disapproval of Executive Order on security requirements for U. S. government employees, 850
resolution on Dr. Anderson resigning as Secretary of Council on Medical Education and Hospitals, 854
resolution on Doctor Draft Law, 848
resolution on essentials of approved internship, 836; (Reference Committee report) 837
resolution on establishing Bureau concerned with history of medicine, 848
resolution on establishing Bureau to deal with relationships between physicians and medical technologists, 728; 740
resolution on ethical relationships between physicians, 840
resolution on ethics of billing for cooperative care of patient by two or more physicians, 844
resolution on expressing appreciation to physi*cians of Korea, 854*
resolution on federal legislation (treaties), 842
resolution on Freedom Under God, 843
resolution on gamma globulin, 849
resolution on General Practitioner Award, 843
resolution on Health and Welfare Funds, 849
resolution on intern training in private hospitals, 836, (Reference Committee report) 837
resolution on International Labor Organization, 845
resolution on magazine Trustee published by American Hospital Ass'n., 844
resolution on malpractice insurances rates in medical partnerships, 843; 844
resolution on malpractice liability insurance, 727; 732; 733
resolution on medical and hospital benefits for veterans, government personnel, and their dependents, 838
resolution on medical and hospital care of veterans by federal government, 838
resolution on medical care for veterans, 838
resolution on medical ethics, 842
resolution on membership in A.M.A. Sections, 851
resolution on more equitable distribution of interns, 836, (Reference Committee report) 837
resolution on nominations to standing committees (Councils), 834; 835
resolution on osteopathy, 837
resolution on P. R. Hawley, and others publicizing ghost surgery, fee splitting, and unnecessary operations, 839; 840; 841; 842
resolution on P. R. Hawley's interview by *U. S. New and World Report,* 839; 841; 842
resolution on payment of back membership dues, 845
resolution on physician placement conference, 846
resolution on portrayal of physicians in television and radio advertising, 847; 848
resolution on prescriptions code, 851; (Reference Committee report) 852
resolution on problem of accrediting nursing schools, 728; 729; 731
resolution on professional and administrative audit of hospitals, 848
resolution on proposed 23rd amendment to U. S. Constitution, 845
resolution on public criticism of physicians, 839; 840
resolution on public relations, 839
resolution on reconsidering special committee report on federal medical services, 838
resolution on reevaluating residency and postgraduate training, 848
resolution on regulation of nursing in Veterans' Hospitals: wage scale, 849
resolution on responsibility of U. S. Government in medical care of the citizen, 731; 733
resolution on restudy of matching plan for internships, 846
resolution on revision of essentials of approved internships, 836; 837; (Reference Committee report) 837
resolution on revision of intern program, 836; (Reference Committee report) 837
resolution on revision of PRINCIPLES OF MEDICAL ETHICS, Chap. I, Sect. 1 and 2, 850
resolution on seating of House of Delegates, 846
resolution on selection of interns, 846
resolution on social security system and program, 835; 836
resolution on statements for publication, 841
resolution on subscription to *Today's Health* be deducted from $25 dues and sent to each physician, 843
resolution on treatment of nonservice disabilities by Veterans Administration, 838; 839
resolution on U. S. Department of Health, Education and Welfare, 835; 843
St. Louis Clinical Meeting, Dec. 1-4, 1953, 728; 729 (Scientific Exhibit) 1244; 1344
San Francisco Meeting (1954), postconvention trip to Hawaii, 1719
schools for technical personnel approved by, *160-*163; 165—E
Scientific Exhibit, (New York Meeting) 714; (review of) 925
Scientific Exhibit, (St. Louis Clinical Meeting, Dec. 1-4, 1953) 459; 1244; 1344

AMERICAN MEDICAL ASSOCIATION—Continued
Searle (G. D.) Company, A.M.A. expresses appreciation to, 855
Section on Anesthesiology, (minutes) 928; (Chairman's address) [Whitacre] *1407
Section on Dermatology and Syphilology, (Committee on Industrial Dermatology) 923—E; (minutes) 929
Section on Diseases of the Chest, (minutes) 930
Section on Experimental Medicine and Therapeutics, (minutes) 930
Section on Gastroenterology and Proctology, (minutes) 931
Section on General Practice of Medicine, (history of) *158; (minutes) 932
Section on Internal Medicine, (minutes) 932; (chairman's address) [Schnabel] *1590
Section on Laryngology, Otology and Rhinology, (minutes) 933
Section on Military Medicine, (minutes) 934
Section on Miscellaneous Topics, (minutes) 933
Section on Nervous and Mental Diseases, (minutes) 934
Section on Obstetrics and Gynecology, (minutes) 935
Section on O[illegible]36
Section on O[illegible]es) 938
Section on P[illegible], (minutes) 938
Section on Pediatrics, (minutes) 939
Section on Physical Medicine and Rehabilitation, (minutes) 940
Section on Preventive and Industrial Medicine and Public Health, (minutes) 940
Section on Radiology, (minutes) 941
Section on Surgery, General and Abdominal, (minutes) 941
Section on Urology, (minutes) 942
Sections, (summary of meetings) 714; (resolution on proposed change in make-up of nominating committees) 851; (resolutions on membership in) 851; (exhibits) 925; (awards) 926; (registration) 927; (minutes) 926
Session on Allergy, (minutes) 933
STANDARD NOMENCLATURE OF DISEASES AND OPERATIONS used by hospitals, *158
Standing Committee membership (Council report) 827; (resolution on) 834; 835
Student A.M.A. (delegates, presentation and addresses at New York meeting) 725
Technical Exhibits, New York meeting, 714
television, (new "M.D." series) 459; (at New York meeting) 716
Tellers, Sergeants at Arms, appointments, 719
Today's Health, A.M.A. resolution on subscription price be deducted from $25 dues and sent to each physician, 843
Trustees: See subhead: Board of Trustees
Washington Office, Summary of Federal Legislation: See Laws and Legislation, *federal,* weekly summary
Washington Special Session, (proceedings adopted) 720
Woman's Auxiliary: See Woman's Auxiliary

AMINOPHYLLINE
oral diuretics evaluated, [Greiner & Gold] *1130
treatment, intravenous, of initial phase of apoplexy, [Mainzer] 194—ab

AMINOPTERIN
treatment plus steroid hormones for acute *leukemia, [Magnin] 364—ab*

p-AMINOSALICYLIC ACID: See Acid

AMMI
majus extract in vitiligo, [Sidi] 1385—ab

AMMOIDIN: See 8-Methoxypsoralen

AMMONIA
ingestion causes jejunal stricture with severe potassium deficiency, [Chassin & Slattery] *134

AMMONIUM COMPOUNDS
chloride, evaluation of diuretic agents given orally, [Greiner & Gold] *1130
new hand disinfectant, [Massone] 1484—ab
Tetraethyl: See Tetraethylammonium Chloride

AMNION
membrane, salpingolysis after covering ovaries with, [ten Berge] 370—ab

AMNIOTIC FLUID
embolism, [Reid & others] *227; 267—C; [Dyer] 277—ab
exchange rates between maternal circulation and, [Plentl] 1565—ab
from newly pregnant cows and ewes for rehydration of infants, Paris, 74
presumptive infusion with resultant postpartum hemorrhage due to afibrinogenemia, [Reid & others] *227

AMOBARBITAL SODIUM
hemodialysis in treatment of barbiturate poisoning, 822—E

AMPHETAMINE
effect on blood sugar, 294

AMPULLA OF VATER
cancer, Italian meeting discusses, 1164

AMPUTATION
phantom-limb pain, surgical treatment, [Falconer] 366—ab
pregnancy in amputees, 374

AMPUTATION—Continued
  stump, lymphostatic verrucosis of, pressure bandage (football bladder inflated in artificial limb) for, [Loewenthal] 475—C
AMUSEMENTS: See Leisure; Physicians, avocations; Recreation
AMYLASE
  in Blood: See Blood
ANALGESIA: See Anesthesia; Pain, relief of
ANAPHYLAXIS: See Allergy
ANASTOMOSES: See Anus; Esophagus; Intestines; Ureters
ANATOMY
  Morbid: See Pathology
ANDERSON, D. G., (appointed dean at Rochester) 745; (A.M.A. resolutions on his terminating position at A.M.A.) 854
ANDROGENS
  testosterone, progesterone and estradiol combined in treating menopause, [Justen] 1280—ab
  testosterone propionate U.S.P., N.N.R., (Vitarine) 921
  treatment, intensive, in advanced breast cancer, (Council report) [Kennedy & Nathanson] *1135
  treatment of ovary cancer, 1394
  treatment plus estrogens for menopausal syndrome, [de Watteville] 98—ab
ANDROSTAN 17 (β)-ol-3-one: See Stanolone
ANECTINE CHLORIDE: See Succinylcholine
ANEMIA: See also Anemia, Pernicious
  aplastic, after corticotropin therapy, [Snively & others] *1223
  classification, [Armas Cruz] 371—ab
  complicating diaphragmatic hernia, [Kümmerle] 1381—ab
  etiology: vaporizing and fumigating devices for insecticides, (Committee report) *1232; 1238—E
  hemolytic, after ingesting *p*-aminosalicylic acid-sodium ascorbic solution, [Lust] 1281—ab
  hemolytic secondary, triethylene melamine vs. nitrogen mustard for, [Bond] 1655—ab
  hemolytic splenic, [Aas] 281—ab
  hypoplastic, caused by drug idiosyncrasy, (Council report) [Osgood] *818; 823—E
  of infection, 681—ab
  preleukemic acute human leukemia, [Block & others] *1013
  sickle cell, demonstration of sickle cells, 1396
  sickle cell, in pregnancy, 1291
  sickle cell, liver in, [Green] 479—ab
  simple, difficulty in treating, 1082
  treatment, transfuse red cells without plasma, [Cazal] 980—ab
ANEMIA, PERNICIOUS
  symptomatic in chromium poisoning, [Steim] 1575—ab
  tapeworm, Finland, 958
  treatment, liver extract or liver extract and vitamin B_{12}; least amount? 1586
ANESTHESIA
  choice of, for circumcision, (reply) 293; [Palmer] 1678
  choice of, in ruptured ectopic pregnancy, 107
  efocaine, discontinued as nerve block anesthesia, [Eastwood & Bartlett] 1067—C
  [illegible] ig pro- [illegible] anni- [illegible]
  general, postoperative vomiting in patient after, [Colombo] 1484—ab
  general, renal function during, [Papper] *1686
  in intrathoracic surgery, Brazil, 1451
  in labor, Chile, 547
  in labor: nisentil, [Kane] 1657—ab
  in labor: trichlorethylene, [Morgan] 1273—ab
  intratracheal, meperidine to prevent coughing during, [Buschkens] 977—ab
  mask modified for giving ether, air and oxygen simultaneously, [Stodsky] *1714
  Narcosis (prolonged): See Narcosis
  preanesthetic sedation of children, [Eckenhoff] 1556—ab
  problems of, for surgical procedures within the chest, [Phelps & McAfee] *1004
  procaine, use for circumcision cause gangrene of penis? 293; (reply) [Palmer] 1678
  Regional Analgesia, (film review) 1068
  spinal, Sweden, 1552
ANESTHESIOLOGY
  anesthesiologist's responsibility to patient, (Chairman's address) [Whitacre] *1407
  as a specialty, Argentina, 752
  as aid to other fields of medical practice, [Lundy] *805
  Association of University Anesthetists, announce formation, 1441
ANEURYSM
  aortic, caused by syphilis, Turkey, 550
  aortic (thoracic), resection and replacement by graft, [DeBakey & Cooley] *673
  Arteriovenous: See Fistula, arteriovenous
  saccular, excision of sac and aortic suture in, [Bahnson] 1378—ab
ANGINA
  Agranulocytic: See Agranulocytosis
  herpangina, [Kravis] 362—ab
ANGINA—Continued
  herpangina and herpetic stomatitis, [Schlack] 367—ab
  Monocytic: See Mononucleosis, Infectious
  Vincent's infection: staining smear for diagnosis, 656
ANGINA PECTORIS
  patients with aortic insufficiency and low diastolic pressure fail to have, 198
  symptoms: smothering but not painful in hurriedly going up stairs, 376
  treatment, heparin, [Rinzler] 1461—ab
  treatment, heparin, clinical evaluation, [Levy] 355—C; [Engelberg] 474—C; (reply to Dr. Engelberg) [Binder] 1066—C
ANGIOCARDIOGRAPHY: See Cardiovascular System
ANGIOLOGY: See Blood Vessels
ANGIOMA: See Hemangioma
ANGIOSPASM: See Raynaud's Disease
ANHIDROSIS: See Sweat
ANIMALS: See also under specific names of animals as Cats; Cows; Dogs, Foxes; Rats
  diseases transmissible to man, seminar on zoonoses, 465
ANKLE
  granuloma after swimming pool abrasions, [Rees & Bennett] *1606
ANOMALIES: See Abnormalities; under names of specific organs as Heart; Uterus
ANOREXIA: See Appetite
ANOXEMIA: See Blood oxygen
ANOXIA: See Oxygen deficiency
ANTABUSE: See Disulfiram
ANTAZOLINE (Antistine)
  intra-arterial injection in endarteritis obliterans, [Marinoni] 1381—ab
ANTHRAX
  laboratory-acquired in bacteriologist, 1084
ANTIBIOTICS: See also Aureomycin; Chloramphenicol; Erythromycin; Neomycin; Oxytetracycline (terramycin); Penicillin; Streptomycin
  abdominal surgery and, [Brown] 189—ab
  bacteriology of nasal sinusitis, Brazil, 70
  candicidin, [Kligman] 1565—ab
  classified as bactericidal or bacteriostatic, 1396
  effect on intestinal flora, 1676
  production in Great Britain, 1650
  toxicity; paresthesia, 1290
  treatment, aerosols in pulmonary tuberculosis, [Paraf] 1485—ab
  treatment (combined AOC) in refractory urinary tract infections, [Eisenberg & others] *1302
  treatment, cross resistance and induced sensitivity to, [Fusillo] 87—ab
  treatment, cross resistance to; exposure to carbomycin vs. erythromycin [Finland] 190—ab
  treatment, erythromycin to counteract staphylococcic enteritis resulting from, [Dearing] 1073—ab
  treatment, fatal mycosis (Candida albicans) complicating, [Brown & others] *206
  treatment in ophthalmology, Turkey, 1455
  treatment of bacterial meningitis, [Alexander] *662
  treatment of biliary tract disease, [Zaslow] *1683
  treatment of infections, clinical problems, [Spink] *585
  treatment of subacute infectious endocarditis, [Donzelot] 1076—ab; (Minot lecture) [Keefer] *1393
  treatment of whooping cough, London, 1257
  treatment plus corticotropin in peritonitis, [de Ruiter] 97—ab
  treatment, Pseudomonas aeruginosa infections resulting from, [Clement] 1573—ab
  treatment, resistance of pathogenic staphylococci, [Finland] 760—ab
  troches, misuse of, 533—E; [Kutscher] 1270—ab
ANTIBODIES: See also Agglutinins; Antigens
  in allergic eczema, [Haxthausen] 481—ab
  production, role of vitamins, [Axelrod] 91—ab
  Rh: See Rh Factor
ANTICHOLINERGIC DRUGS
  gastric secretion, [Kirsner] 649—ab
  use in peptic ulcer, BA-5473 compounds, 1499
ANTICHOLINESTERASE
  [illegible] treatment of [illegible] & others] [illegible]
ANTICOAGULANTS: See Bishydroxycoumarin; Blood coagulation; Heparin
ANTIGENS: See also Antibodies
  inhalant, atopic dermatitis from, [Diamond] 1465—ab
  injections (Rhus), exacerbation of ivy dermatitis, [Reyer] 1168—ab
  mumps skin test during mumps epidemic, [Cabasso & Hoagland] *1527
  Rh: See Rh Factor
  study of strain A' and B 1951, [Fauconnier] 99—ab
ANTIHEMOPHILIC FACTORS
  A and B, assay of in hemophilia, [Soulier] 1385—ab
ANTIHEMOPHILIC PLASMA (human)
  name accepted by Council, 709
  treatment of hemophilia, [Jonas] 1672—ab
ANTIHISTAMINES: See also under specific names
  effect on erythrocytes agglutination, [Lucia] 1468—ab
  to prevent postoperative vomiting after general anesthesia, [Colombo] 1484—ab
ANTI-INFECTIVES: See Disinfection; Sterilization, Bacterial
ANTI-LEWISITE, British: See Dimercaprol
ANTIRENIN
  pathogenesis of essential hypertension, 1435—E
ANTISEPTICS: See also Disinfection; Sterilization, Bacterial
  types (6) to preserve ophthalmic solutions, (Council article) [Theodore & Feinstein] *1633
ANTISTINE: See Antazoline
ANTITOXIN: See Tetanus
ANTIVITAMINS
  which are specific competitive antagonists of vitamins, Italy, 1453
ANURIA: See Urine suppression
ANUS: See also Hemorrhoids; Rectum
  Artificial: See Colostomy
  Pruritus: See Pruritus
  surgery, anastomosis of transverse colon to anus, Brazil, 470
  surgical importance of internal anal sphincter, [Eisenhammer] 1387—ab
ANXIETY: See also Stress
  treatment of "functional" disorders, [Watts & Wilbur] *1192
AORTA
  abdominal, arteriography, Italy, 867
  Aneurysm of: See Aneurysm
  bifurcation, insidious thrombosis of, [Beaconsfield] 1265—ab
  bifurcation, pathogenesis and surgical treatment, [van der Linden] 1570—ab
  bifurcation, resection: Leriche syndrome, [Cahen] 1570—ab
  bifurcation, thrombosis at, resection and homograft replacement, [Oudot] 1265—ab
  coarctation (familial), [Taylor] 874—ab
  coarctation, prognosis in, 596—ab
  graft in aneurysm of thoracic aorta, [DeBakey & Cooley] *673
  intra-aortic transfusion, [Haxton] 1278—ab
  intra-aortic transfusions in cardiac arrest, [Stephenson & Hinton] *500
  roentgen hepatography by injection of contrast medium into, [Rigler] 1376—ab
  suture in saccular aneurysms, [Bahnson] 1378—ab
AORTIC ARCH
  persistence of 6th arch in bilateral ductus arteriosus, [Kelsey] 760—ab
AORTIC VALVE
  insufficiency with rise in systolic blood pressure or decrease in diastolic pressure? 198
  rupture of, audible chest sounds with, [Bean] *1298; *1299
  stenosis and Bernheim's syndrome, [Russek] 551—C
APHAMITE: See Parathion
APOENZYMES
  nutrition and, 710—E
APOPLEXY: See Adrenals, hemorrhage; Brain hemorrhage
APPARATUS: See also Diathermy; Hearing Aids; Medical Supplies; Roentgen Rays
  "armchair" therapy cart, [Klain] *517
  machine for resuscitation of newborn, [Mann] *1333
  pre[illegible] (Council article) [illegible] 332
  re[illegible] newborn; Jackson infant laryngoscope and bronchoscope, Kreiselman infant resuscitator, [Beattie & Zwerling] *216
  simple receptacle (Venopak unit and bottle) for t-tube drainage, [Watson] *814
  syringe shield used in injecting radioactive gold, [Getzoff & others] *1431
  vaporizing and fumigating devices for insecticides, health hazards of, (Committee report) *1232; 1238—E
APPENDECTOMY
  abdominal pain after, (reply) [Dittrich] 566
  mortality, 15 year review, [Hill] 1562—ab
APPENDICITIS: See also Medicolegal Abstracts at end of letter M
  acute, mortality of surgically treated, [Hill] 1562—ab
APPENDIX
  cancer, [Hilsabeck] 279—ab
  Excision: See Appendectomy
APPETITE
  anorexia in syndrome from "improved" flour, London, 353; [Pollock] 1066—C
  anorexia nervosa, adrenocortical function in, [Altschule] 1735—ab
  pica in 2 year old child, 1292
  protein effect on, in dietary treatment of hypertension, [Dole] 969—ab
APRESOLINE: See Hydralazine Hydrochloride

ARACHNIDISM: See Spiders, bites from
ARACHNOIDITIS
  treatment, x-ray, cortisone, etc., 774
ARC WELDING: See Welding
ARCHIVES of A.M.A.: See American Medical Association, journals, (special)
ARCTIC
  island, influenza on, Bering Strait, 349
ARFONAD
  intravenous use, [Nicholson] 1661—ab
ARIZONA
  scorpions in, 106
ARKANSAS
  University of: See University
ARMCHAIR
  therapy cart, [Klain] *517
ARMED FORCES: See also Army; Aviation, U. S. Air Force; Korean War; Navy
  Armed Forces Medical Journal, Col. McShane appointed associate editor, 349
  dependents, Citizens Advisory Commission on Medical Care of, 349
  Institute of Pathology, section on geographic pathology, [Karsner] 355—C
  Medical Advisory Council, 179; (picture) 1357
  medical corps, inequities of present priority system; service reduced to 12 months, 165—E; (statement of Dr. Hamilton before Congress), 166
  medical officers, special pay of $100 per month for, 165—E; 166; (President's page) 1239
  medical personnel, wastage and need, President's page, 458
  Medical Policy Council, replaced, 179; 1357
  members of, or their dependents, federal bills on, A.M.A. position on, 1046; 1240
  syphilis control in, [Bauer] *300
  U. S. Department of Defense, (Dr. Casberg appointed assistant to secretary) 179; (A. M.A Committee report) 832; (Dr. Allman's statement before House Committee on reorganization) 1150
ARMS: See also Elbow; Extremities; Fingers; Hand; Humerus; Radius; Shoulder
  Amputation: See Amputation
  pain in arm associated with bowel movement, 1396
ARMY
  Norwegian, tuberculosis in, Norway, 1361
ARMY, UNITED STATES: See also Armed Forces; Korean War; World War II
  internships, June graduates receive, 179
  Koreans grateful for medical books, 1062
  Medical Corps, 10 postgraduate short courses, 956
  Medical Service Corps, medical specialties preference test, 948
  Medical Service, 3 years in Korea, 1448
  Noyes (Edward A.) retired, 546
  Smadel (J. E.), Howard Ricketts Medal presented to, 1161
  soldiers, coronary disease in those killed in action in Korea, [Enos & others] *1090
  Walter Reed Army Medical Center, new commandant, (picture) 257; (Brig. Gen. Seeley leaves position as chief) 1449
ARRHYTHMIA: See also Auricular Fibrillation; Tachycardia; Ventricular Fibrillation
  cardiac, procaine hydrochloride and procaine amide for, Chile, 351
  extrasystoles: significance; treatment, 1494
  teaching auscultation by endless loop tape recording, [Geckeler & others] *1335
  treatment, allergic skin reaction to procaine amide hydrochloride, [Koffler] *28
ARSENIC
  cancers of skin and internal organs, [Sommers] 1170—ab
  in urine from arsenic in water supply, 1394
  toxicity: hemorrhagic encephalopathy, [Prickman & Millikan] *1711
ARSTHINOL (Balarsen; Mercaptoarsenol)
  N.N.R., (description) 531; (Endo) 531
  name accepted by Council, 709
ART: See also Physicians, avocations
  medical art exhibit at Milwaukee, 1722
  Portraits: See Portraits
ARTERENOL (Nor-Epinephrine)
  effect on cardiovascular apparatus, [Bardelli] 1487—ab
  to control blood pressure in surgical treatment [illegible] causing hemiplegia, [illegible] after intravenous [illegible]] *607; [Bifulco] 1554—C
  treatment of shock, [Miller & others] *1198; (correction) 1543
L-ARTERENOL: See Levarterenol
ARTERIES: See also Aorta; Blood Vessels; Ductus Arteriosus; Veins
  Aneurysm: See Aneurysm
  basilar, Blood Streams in the Basilar Artery, (film review) 1068
  carotid, free autogenous vein graft to, in treating neck tumors, [Conley] 360—ab
  *carotid (internal), occlusion, pharyngeal palpation to detect, [Dunning] *321*
  carotid (internal), thrombosis of, [Egas Moniz] 1483—ab
ARTERIES—Continued
  carotid, ligation for intracranial vascular anomalies, complications, [Brackett] 1271—ab
  Coronary: See also Angina Pectoris
  coronary blood flow, effect of intra-arterial and intravenous blood infusion in hemorrhagic shock, [Case & others] *208
  coronary circulation, surgical restoration, [Bailey] 765—ab
  coronary disease and periarthritis of shoulder, [Robinson] 767—ab
  coronary disease, cardiopericardiopexy (magnesium silicate spread over myocardium), [Thompson & Plachta] *678
  coronary disease, in New England, contrast between 1925 and 1950, [White] *303
  coronary, disease in U. S. soldiers killed in action in Korea, [Enos & others] *1090
  coronary disease, serum cholesterol, lipid phosphorus, and Sf 12-20 lipoproteins, [Katz] 357—ab
  coronary, insufficiency, crystalline visammin in, [Lemmerz] 1476—ab
  Coronary Occlusion: See also Thrombosis, coronary
  coronary occlusion, trypsin injection for, [Innerfield & others] *597
  Coronary, Sclerosis: See Arteriosclerosis
  disease (chronic occlusive), sympathectomy in, [Knox] 1660—ab
  Disease (obliterative): See *Endarteritis*; Thromboangiitis obliterans
  Embolism: See Embolism
  Fistula: See Fistula, arteriovenous
  grafts for vascular injuries in Korean War, [Cooke] 190—ab
  hepatic and splenic, division to control active bleeding from esophageal varices, [Miller & Owen] *377
  hepatic and splenic, ligation for cirrhosis with ascites, [Reinhoff & Woods] *687
  Inflammation: See Arteritis; Endarteritis; Periarteritis
  Injections into: See Blood Transfusion, intra-arterial; Injections, intra-arterial
  Pressure in: See *Blood Pressure*
  Pulmonary: See also Embolism, pulmonary
  pulmonary, congenital absence of main branch, [Steinberg & others] *1216
  roentgen study, arteriography of abdominal aorta, Italy, 867
  Sclerosis: See Arteriosclerosis
  spasms of essential arteries, [Lian] 1280—ab
  surgery, arterectomy for Volkmann's ischemia after elbow dislocation, [Sarkar] 96—ab
  Temporal: See Arteritis
  Thrombosis: See Thrombosis
  Transfusion via: See Blood Transfusion
ARTERIOGRAPHY: See Arteries, roentgen study
ARTERIOSCLEROSIS
  American Society for Study of, 173
  atherosclerosis and weight reduction, 593—ab
  atherosclerosis, lipoproteins studied with electrophoresis in, Paris, 1551
  atherosclerosis, reduce blood cholesterol with sitosterol, [Pollak] 1663—ab
  atherosclerosis, relation to cholesterol, Norway, 73
  cerebral, hypnotics (Domison) in aging and senile patients, [May & Ebaugh] *801
  coronary, in men, [Spain] 559—ab
  coronary, in U. S. soldiers killed in action in Korea, [Enos & others] *1090
  hypercholesteremia, effect of Monichol, [Sherber & Levites] *682
  occlusion of internal carotid detected by pharyngeal palpation, [Dunning] *321
  Renal Disease: See Nephrosclerosis
  varied hypertension with, 1677
ARTERITIS: See also Endarteritis; Periarteritis
  temporal, cortisone and corticotropin for, [Whitfield] 768—ab
ARTHRITIS: See also Gout; Periarthritis; Rheumatism
  acute pyogenic, *326
  Atrophic or Chronic: See Arthritis, Rheumatoid *following*
  Degenerative; Hypertrophic: See Joints, degenerative joint disease
  National Institute of, Dr. Wilder retires, 1162
  PRIMER ON RHEUMATIC DISEASES, 4th edition, *323; 405; *522
  Reiter's disease, *529; [Hall] 1169—ab
  Reiter's disease, corticotropin in, [Larson] 1070—ab
  Spinal: See Spine
  syphilitic, *329
  treatment, cortisone and ACTH in, Chile, 957
  *tuberculous, *327*
  tuberculous, of knee, effect of streptomycin in, [Smith & Bailey] *792
ARTHRITIS, RHEUMATOID
  acute, trypsin injection for, [Innerfield & others] *597
  heart in, [Sokoloff] 1656—ab
  painful toe, 1084
  PRIMER ON RHEUMATIC DISEASES, *405; *408
  treatment, aurothioglycanide (Lauron), [Batterman] *1013
ARTHRITIS, [illegible]
  treatment, [illegible] lescription) 11[illegible]
  treatment, corticotropin and cortisone, prolonged use, (Denmark) 352; [Bratlund] 981—ab; [Fischer] 981—ab
  treatment, cortisone, [Ward & others] *119
  treatment, cortisone, generalized pruritus from protein substances in? 1581
  treatment, cortisone, postoperative adrenal cortical insufficiency after, [Salassa & others] *1509
  treatment, gold, [Nugent] 767—ab; [Brown] 1478—ab
  treatment, irgapyrin, [Achari] 1177—ab
  treatment, nitrogen mustard, [Cohen & others] *402
  treatment, occupational therapy early in, 1497
  treatment, phenylbutazone and water retention, [Johnston] 75—C
  treatment, phenylbutazone cause of agranulocytosis; precautions urged, [Strazza] 183—C
  treatment, phenylbutazone, toxic reactions, (peptic ulcer perforation) [Shields & others] *28; (multiple gastric ulcers) [Raffensperger] *30; (gastric ulcer with hemorrhage) [Krainin] *31; (agranulocytosis) [Steinberg & others] *33; (water retention) [Johnston] 75—C
  treatment, placenta blood serum, [Spielberg] 1264—ab
  treatment, placental grafts also extract, [Uranga] 1672—ab
  treatment, PRIMER ON RHEUMATIC DISEASES, *408
  treatment, proseptasine, [Barford] 1177—ab
ARTHROPATHY
  neurogenic, Primer on Rheumatic Diseases, *530
ARTHROSIS: See Joints; Knee
ARTICLES, Reprints of: See Journals
ARTIFICIAL
  Kidneys: See Kidneys
  Limbs: See Limbs, Artificial
  Pneumoperitoneum: See Pneumoperitoneum
  Pneumothorax: See Pneumothorax, Artificial
  Respiration: See Respiration
  Teeth: See Teeth, dentures
ASCARIS
  cutireaction to, Turkey, 265
  perforation of intestines caused by with resultant peritonitis, Turkey, 1454
ASCITES
  phenylbutazone and water retention, [Johnston] 75—C
  treatment, ligate hepatic and splenic arteries, [Rienhoff & Woods] *687
ASCORBIC ACID: See Acid, ascorbic
ASPHYXIA
  in newborn, method and machine for resuscitation [Mann] *1333
  in newborn, use of Jackson infant laryngoscope and bronchoscope, also Kreiselman infant resuscitator, [Beattie & Zwerling] *216
  Local: See Raynaud's Disease
ASPIRATION
  Pneumonia: See Pneumonia
ASPIRIN: See Acid, acetylsalicylic
ASSAULT and BATTERY: See Medicolegal Abstracts at end of letter M
ASSOCIATION: See also American Medical *Association*; *Societies, Medical*; Medicolegal Abstracts at end of letter M; Societies at end of letter S
  of American Medical Colleges, (Peiping Union Medical College approved for list of foreign medical schools) 186; (list of approved foreign medical schools) *440; 456—E; (incidence of tuberculosis among American medical students) 922—E; [Miller] 1554—C
ASTHENIA: See also Myasthenia
  restless legs syndrome, relief with quinidine sulfate, (reply) [Lowell] 200
ASTHMA
  atopic dermatitis caused by inhalant antigens, [Diamond] 1465—ab
  complications: bronchostenosis, [Mears & others] *997
  complications: fatal anaphylaxis from penicillin, [Curphey] 1564—ab
  diabetes mellitus antagonistic to [Gutman] 1572—ab
  farmer's lung, [Fuller] 1387—ab
  fatal reaction after dextrose intravenously, [O'Hare] 1660—ab
  sensitivity to cottonseed, 775
  treatment, corticotropin, [Holler] 195—ab
  treatment, corticotropin and cortisone, Sweden, 264
  treatment, cortisone, [Lowell] 1270—ab
  treatment, Gay's potassium arsenite; hemorrhagic encephalopathy during; dimercaprol counteracts, [Prickman & Millikan] *1711
  treatment, trypsin injection, [Innerfield & others] *597
  treatment, trypsin (Tryptar) inhalations, [Unger & Unger] *1109
ATAXIA
  Locomotor: See Tabes Dorsalis
ATELECTASIS: See Lungs, collapse
ATHEROSCLEROSIS: See Arteriosclerosis

ATHETOSIS:
  treatment, 20% carbon dioxide inhalation, [Fay] *1623
ATHLETE'S Foot: See Dermatophytosis
ATHLETICS
  competitive, for high school students, danger to heart, 1495
  Golf: See Golf
  International Congress of Sports Physicians, Sept. 11-13, 1724
  scars on eyelids of boxers, 1738
  sports medicine, 63
  women athletes, obstetrical course of, [Niemineva] 1075—ab
ATLANTO-AXIAL JOINT
  nontraumatic subluxation, [Stein & others] *131
ATMOSPHERE: See Air; Fog
ATOLL, Coral, Research Program, sponsored by National Academy of Sciences, 1162
ATOMIC ENERGY: See also Radioactive Isotopes
  U. S. Atomic Energy Commission, grant for cancer study by, 59
ATOPIC DISEASE: See Allergy
ATROPHY: See also Breast; Fat
  Muscular: See also Dystrophy, muscular
  muscular, localized in diabetes, [Hirson] 1671—ab
ATROPINE
  useful in cardiac resuscitation, [Leeds] *1411
AUDIOLOGY: See Hearing
AUDIOVISUAL AIDS: See Moving Pictures; Television
AUDIOVOX Hearing Aid, Model 70, 1715
AUJESKY'S Disease: See Pseudorabies
AUREOMYCIN
  effect on fungal and bacterial flora, [Mc Govern] 973—ab
  hydrochloride-U. S. P. N. N. R., (Lederle) 332
  production in United Kingdom, 1650
  toxicity: fatty degeneration of liver, [Pagliei] 1180—ab
  toxicity: jaundice, [Bateman] 86—ab; (correction) 252
  toxicity: reaction to troches, 533—E; [Kutscher] 1278—ab
  treatment, cross resistance and induced sensitivity to [Fusillo] 87—ab
  treatment, cross resistance to, [Finland] 190—ab
  treatment, effect on nitrogen metabolism, liver histology, and liver function tests, [Faloon] 1469—ab
  treatment, fatal mycosis (Candida albicans) complicating, [Brown & others] *206
  treatment, misuse of troches, 533—E
  treatment of bacteremia due to gram-negative bacilli, [Spink] *588
  treatment of bacterial meningitis, [Alexander] *662
  treatment of lymphogranuloma venereum, [Ribas] 368—ab
  treatment of streptococcic infections in the home, [Breese] *10
  treatment of whooping cough, London, 1257
  treatment plus nitrogen mustard in human cancer, [Bateman] 1170—ab
  treatment plus oxytetracycline and chloramphenicol in refractory urinary tract infections, [Eisenberg & others] *1302
  treatment plus vaccine for brucellosis, [Poli] 1484—ab
  treatment, vs. penicillin and oxytetracycline, effects on tonsillitis, [Denny] 189—ab
AURICULAR FIBRILLATION
  treatment, quinidine, review; evaluation, [Weisman] *496; (correction) 950
AUROTHERAPY: See Gold treatment
AUROTHIOGLYCANIDE (Lauron)
  N.N.R. (description) 1338; (Endo) 1339
  name accepted by Council, 709
  treatment of rheumatoid arthritis, [Batterman] *1013
AUSCULTATION
  auscultatory gap, 1586
  teaching of by endless loop tape recording, [Geckeler & others] *1335
AUTOAGGLUTININS: See Agglutinins
AUTOMOBILES: See also "Motor Vehicles" under Medicolegal Abstracts at end of letter M
  accidents, collision with bicycles, fatalities from in U. S., 923—E
  accidents due to allergy, 296
  accidents, exhibit symposium on prevention, St. Louis Clinical Meeting, 1344
  accidents involving Navy and Marine corps personnel, 1648
  accidents, reduction of motor vehicle deaths an individual responsibility, 1143—E
  accidents, severe perforating wound of head and neck from blunt object (lead pipe), [Black & McClintock] *519
  accidents, whiplash injuries of neck, [Gay & Abbott] *1698
  car window fractures of elbow, [Carswell] 1559—ab
  driver going to sleep, muscle relaxation of hand and fingers on steering wheel, 374
  sanitation in trailer courts, 258
  traffic safety, Carol Lane awards for, 464
  traffic safety honor roll, 747
AVIATION: See also Altitude, high
  [illegible]ticides, 1682—ab
  [illegible] with jet transport,
  [illegible]ers, Washington, 947
  Medical Acceleration Laboratory, appoint research director, 257
  medical officer needed by Mobile Air Matérial Area Brookley Air Force Base, Ala., 857
  medicine, certification by American Board of Preventive Medicine, 477
  rapid air evacuation and mobile army surgical hospital, 1449
AVIATION, U. S. Air Force
  Air University Board visitors, (picture) 349
  first flight surgeon (Dr. R. J. Hunter) visits school, 546
  grant or air research, N. Y., 1154
  school of aviation medicine; Brig. Gen. E. J. Kendricks, new commandant, 546
AVITAMINOSIS: See under name of specific Vitamins
AVOCATIONS: See Physicians, avocations
AWARDS: See Prizes
AZOOSPERMIA: See Spermatozoa

B

B Vitamins: See Vitamins B Complex
BAL: See Dimercaprol
BCG Vaccination; Vaccine: See Tuberculosis, immunization
BABIES: See Infants
BACILLEMIA: See Bacteremia
BACILLUS: See Bacteria
BACITRACIN
  N.N.R., (Pfizer) 332
  treatment, misuse of antibiotic troches, 533—E
  treatment of cranial suppuration, [Teng] 1074—ab
  treatment, of meningitis, [Alexander] *662
  treatment plus neomycin in skin diseases, Denmark, 352
  treatment plus neomycin locally in skin infections, [Gade] 981—ab
BACK: See Spine
  Pain in: See Backache
BACKACHE: See also Sciatica; Spine, intervertebral disk
  lower back pain and sciatica, Chile, 957
  roentgen study of lumbosacral junction, [Splithoff] *1610
  slipped sacroiliac joint, 105
BACTEREMIA
  due to gram-negative bacilli, antibiotics treatment, [Spink] *588
  shock produced by gram-negative bacilli, [Braude] 1274—ab
BACTERIA: [illegible] under specific [illegible]taphylococcus; [illegible] Bacillus; under names of organs and regions; Eyes; Intestines
  abortus infection: See Brucellosis
  antibiotic effect of chloramphenicol and oxytetracycline, Turkey, 1363
  antibiotics classified as bactericidal or bacteriostatic, 1396
  aureomycin and chloramphenicol effect on, [McGovern] 973—ab
  coliforms, KKV diagram, Mexico, 1359
  cross resistance and induced sensitivity to antibiotics, [Fusillo] 87—ab
  cross resistance to antibiotics, [Finland] 190—ab
  gram-negative, shock produced by, [Braude] 1274—ab
  growth in infusion of fluids, [Michaels] 1482—ab
  in Blood: See Bacteremia; Septicemia
  Infection: See Infection
  intestinal vitamin-elaborating, effect of penicillin on, 564
  ionizing radiation sterilization of pharmaceuticals, [Tarpley] 1373—ab
  occurrence of paracolon and non-lactose fermenting enteric bacteria, [Hare] 1375—ab
  of nasal sinusitis, Brazil, 70
  on eating utensils, [Ridenour] 359—ab
  Proteus vulgaris: See Proteus
  Pyocyaneus: See Pseudomonas
BACTERICIDES: See also Antiseptics; Disinfection; Sterilization Bacterial
  antibiotics classified as bactericidal or bacteriostatic, 1396
BACTERIOLOGISTS
  laboratory-acquired anthrax in, 1084
BACTERIOLOGY: See Microbiology
BACTERIUM: See Bacteria
BAKERS: See also Bread
  nasal irritation from flour incrustation on nasal mucosa, 1677
BAL: See Dimercaprol
BALARSEN: See Arsthinol
[illegible] society discusses, [illegible]
BALME, HAROLD, death, 1156
BANANA
  dessert, Beech-Nut Junior, 45
BANDAGE: See Dressings
BANDI'S Test: See Cholera, diagnosis
BANG'S Disease: See Brucellosis
BANKS (therapeutic): See Blood Transfusion; Eyes
BANQUET Table Brand Tomato Juice, 1535
BANTHINE: See Methantheline
BARBERS
  disease, sinus between 2 fingers containing hairs, [Waris] 1466—ab
  ultraviolet sterilization in barber shops, 775
BARBITURATES: [illegible] Mephobarbital; [illegible]
  death from com[illegible]biturates, [Møller] 288—ab; (Denmark) 352
  poisoning (acute) [Higgins] 1176—ab
  poisoning (acute), diagnostic use of pentylenetetrazol (metrazol) in [Fazekas & Koppanyi] 628—C
  poisoning, hemodialysis in treatment of, 822—E
  poisoning; problem of addiction, 27—ab
BARIUM
  chloride, useful in cardiac resuscitation, [Leeds] *1411
  Enema: See Enema
  meals, hazards of: perforation of colon and duodenal ulcer, London, 71
BARRÉ-Guillain Syndrome: See Guillain-Barré Syndrome
BASAL METABOLISM: See Metabolism, basal
BASEDOW'S Disease: See Goiter, Toxic
BASIC SCIENCES
  applicants examined, 1952, *450
  *board of examiners, *449; 456—E*
  boards, reciprocity, endorsement, waiver, or exemption policies, *450
  boards (21), present executive officer of each, *452
  certificates issued by examination, reciprocity, and endorsement, 1952, *450
  certification, total candidates for, 1927-1952, *451
  examinations, subjects included in, *449; 456—E
  fees, *451
  laws and year of enactment by states, *449
BATHS: See also Swimming
  morning sponge, controversy over, Australia, 70
  Schroeter Whirlpool Carriage, Model B, 1715
  shower, to remove radioactive contamination, [Gregory] 365—ab
  Sitz, Ille Mobile, Model SB 100, 1433
BATTLES: See Korean War
BAUER LOUIS H.
  President, (final Monthly Message) 458; (address before House of Delegates) 722; (A.M.A. resolution in appreciation of his services) 852
BEAUMONT, WILLIAM (1785-1853)
  pioneer physiologist, centennial of his death, [Stenn] *915; (correction) 1156
BEAUTY PREPARATIONS: See Cosmetics
BED
  Capacity: See Hospitals
  Rest: See Convalescence; Rest
BEDPAN
  new type of "armchair" therapy cart, [Klain] *517
BEDWETTING: See Urine, incontinence
BEECHNUT PRODUCTS
  Junior Banana Dessert, 45
BEES
  desensitization, 104
BEHAVIOR: See Mental Health
BELGIAN
  Association of Pharmacists control of pharmaceutical products, 1255
  Congress of Surgery (6th) held at Brussels, 1952, 1255
  National Assembly of Mental Hygiene (5th), 350
  Society of International Medical Law, 330
BELL'S Palsy: See Paralysis, facial
BELTONE Mono-Pac Hearing Aids, Models Lyric and Rhapsody, 1235
BENEMID: See Probenecid
BENODAINE: See Piperoxan
BENOQUIN: See Hydroquinone, monobenzyl ether of
[illegible] line Hydrochloride
  [illegible]amine
  [illegible] gamma, Committee report on common names for pesticides, *820
  [illegible] fumigating devices for [illegible] (Committee report) [illegible]
  test (Gregersen modification) to detect occult blood in feces, [Mendeloff] *798
BENZYL SULFANILAMIDE (Proseptasine)
  treatment of rheumatoid arthritis, [Barford] 1777—ab
BEQUESTS: See Donations (cross reference)
BERG (Albert A.) Institute for Experimental [illegible]39
  [illegible] [Lerner & Fitzpatrick] *577
BERNHEIM'S SYNDROME
  aortic valve stenosis and, [Russek] 551—C
BERRIES
  poisoning in child simulating diabetic coma from "jet beads," [Rascoff & Wasser] *1134

BERTNER Foundation: See Foundations
BESNIER-Boeck-Schaumann Disease: See Sarcoidosis
BETAINE
  treatment plus glycocyamine in poliomyelitis. [Watkins] 1471—ab
BETHANECHOL CHLORIDE (Urecholine)
  treatment of glaucoma, [Frisch] 1462—ab
BEVERAGES: See Milk; Water
  Alcoholic: See Alcohol
BEVERIDGE Plan: See National Service Plan (England)
BIBLIOGRAPHY: See also American Medical Association, Quarterly Cumulative Index Medicus
  on civil defense by A.M.A. Council, 459
BICARBONATE of Soda: See Sodium bicarbonate
BICILLIN
  treatment of beta hemolytic streptococcic infections in the home, [Breese] *10
  treatment of streptococcic pharyngitis? 1583
  treatment, oral, of scarlet fever, [Corlell] 1662—ab
BICYCLE
  accidents (fatal) in U. S., 923—E
BIGGS Prize: See Prizes
BILE
  intestines irrigated with human bile in meconium ileus, [Blegen & others] 1261—C
  simple receptacle (Venopak unit and bottle) for t-tube drainage, [Watson] *814
BILE DUCTS: See also Gallbladder; Liver
  diseases, antibiotics in, [Zaslow] *1683
  obstruction and cholangitis, antibiotics for, [Zaslow] *1684
  roentgen study, visualize during cholecystography, [Sachs] 1660—ab
  roentgen study, Operative Cholangiography, (film review) 186
  surgical diseases, Ecuador, 180
BILHARZIASIS: See Schistosomiasis
BILIARY TRACT: See also Bile Ducts; Gallbladder; Liver
  disease, antibiotics in, [Zaslow] *1683
  dyskinesia, corpus luteum hormone in treatment, [Adlercreutz] 1275—ab
  functional disorders, Brazil, 470
  postoperative stricture, [Pierce] 1472—ab
BILLS: See Fees
  Legislative: See Laws and Legislation
BIOCHEMISTRY
  International Congress on (2nd), Paris, 74
BIOLOGIC PRODUCTS: See also Vaccine
  expiration dates on, 1676
BIOLOGY: See also Radiobiology
  Society for Study of Biological Rhythms, 1724
BIOPSY: See also Endometrium; Kidneys; Thorax
  techniques in intrathoracic lesions, [Storey] 1268—ab
BIOSTATISTICS: See Vital Statistics
BIRDS: See Parrots; Psittacosis
BIRTH: See also Labor
  certificate, mentioning use of outlet forceps delivery and/or episiotomy on, 292
  in Hospital: See Hospitals, maternity
  Multiple: See Twins
  Palsy: See Paralysis, cerebral
  Premature: See Infants, premature
  Rate: See Vital Statistics
  Stillbirth: See Stillbirth
BIRTH CONTROL: See Contraception
BIRTHMARKS: See Nevus
BISHYDROXYCOUMARIN (Dicumarol)
  poisoning, prophylaxis and therapy; 80 deaths, [Dalgaard] 652—ab
  treatment, danger of lumbar sympathetic blocks during, [Hohf & others] *399; [Ruben] 1067—C
  treatment of thromboangitis obliterans of venae centralis retinae, Turkey, 455
  treatment to prevent postoperative thrombosis, [Borgstrom] 1669—ab
  vitamin K antagonism, Italy, 1453
BISTRIUM Bromide: See Hexamethonium
BITES: See Snakes; Spiders
BIVINS, J. A., verruca vulgaris virus, 711—E
BLADDER: See also Urinary System
  cancer (multiple primary) [Phillips] 1569—ab
  cancer, results of treatment, [Milner] 1667—ab
  cystocele, repair, 1582
  exstrophy or cancer hyperchloremic acidosis after ureterosigmoidostomy for, 334—E
  function, effects of methantheline, [Draper] 1667—ab
  hemorrhagic cystitis, trypsin injection for, [Innerfield & others] *597
  injuries complicating pelvic fractures, [Newland] *1515
  rupture, 908—ab
  surgery, [illegible] in women with urinary
  tumors, re [illegible] 1667—ab
BLAKESLEE Prize: See Prizes
BLALOCK, ALFRED, awarded A.M.A. Distinguished Service Medal, (portrait) 614—E; 720
BLASTOMYCOSIS: See also Chromoblastomycosis
  of spine, 36—ab
  pulmonary resection for, [Buechner] 1560—ab
  treatment, candicidin, [Kligman] 1565—ab
BLASTOMYCOSIS—Continued
  treatment, stilbamidine, [Pariser & others] *129
  treatment, stilbamidine, dangers from not using fresh solutions, [Miller] 184—C
BLATT Memorial Lecture: See Lectures
BLEEDERS: See Hemophilia
BLEEDING: See Hemorrhage
BLINDNESS: See also Vision, defects
  School for Blind teaches by mail, Ill., 1437
  tobacco-alcohol amblyopia, [Maxwell] 1176—ab
BLISTER: See also Epidermolysis bullosa
  blood, of cecum, cause of gastrointestinal hemorrhage, [Bockus & others] *1228
  Fever: See Herpes labialis
BLOOD: See also Hemo-
  absorption rate from the eye, influence of cortisone on, [Benedict] 479—ab
  afibrinogenemia, congenital, [Lawson] 1274—ab
  afibrinogenemia, postpartum hemorrhage due to, [Reid & others] *227
  Albumin: See Blood proteins
  alcohol determinations, 6 to 8 hours after blood is drawn, 483
  A.M.A. Committee on, report and supplementary report, 831
  amylase (serum), effects of drugs on, [Pfeffer] 1269—ab
  amylase, test of pancreas function, [Dreiling] 1472—ab
  Bacteria in: See Bacteremia; Septicemia
  Bank: See Blood Transfusion
  blister of cecum source of gastrointestinal hemorrhage, [Bockus & others] *1228
  Cells: See also Erythrocytes; Leukocytes
  cells count in trichinosis, [Kushlan] *222
  cells count, preleukemic acute human leukemia, [Block & others] *1018
  cells, ovalocytosis, 985
  chemistry, effect of gallbladder dyes on, (reply), [Lim] 296
  chemistry study in physical examination. (reply) [Barnett] 882
  chlorides, hyperchloremic acidosis after ureterosigmoidostomy, 334—E
  cholesterol, hypercholesteremia, effect of Monichol, [Sherber & Levites] *682
  cholesterol (serum) lipid phosphorus, and S_f 12-20 lipoproteins, [Katz] 357—ab
  cholesterol, sitosterol reduces, [Pollock] 1663—ab
  cholinesterase levels in parathion poisoning, [Annis & Williams] *594
  Circulation: See also Heart output; Pulse, Vasomotor System
  circulation, Blood Streams in the Basilar Artery (film review), 1068
  Circulation, Cerebral: See Brain
  circulation, effect of cigarette smoke, [Friedell] *897
  circulation, exchange rates between amniotic fluid and, [Plentl] 1565—ab
  circulation, recording oscillometer in orthopedic practice, [Chandler & Dickinson] *901
  circulation, study of arteriolar and capillary circulation, Paris, 755
  citrated, use in same tube with glucose and sodium chloride? 296
  Clot, Intravenous: See Phlebothrombosis
  Clotting: See Blood coagulation
  Coagulation: See also Blood prothrombin; Hemophilia
  Coagulation, Anticoagulants: See also Bishydrocourmarin; Heparin; Phenindione
  coagulation, anticoagulants after cerebral hemorrhage in 73-year old man, 1584
  coagulation, anticoagulants and cardiac infarction, Finland, 180
  coagulation, anticoagulants for mesenteric venous thrombosis, [Koller] 99—ab
  coagulation, anticoagulants for thrombosis and embolism in gynecology and obstetrics, [König] 194—ab
  coagulation, anticoagulants plus sympathetic nerve blocks for vascular lesions, [Pratt] *903
  coagulation, anticoagulants therapy, danger of lumbar sympathetic blocks during, [Hohf & others] *399; [Ruben] 1067—C
  coagulation, anticoagulants therapy, fatal pulmonary embolism during, [Merz] 1672—ab
  coagulation, anticoagulants therapy, hemopericardium with tamponade during [Rose & others] *1221
  coagulation, anticoagulants therapy, recanalization of thrombosed arteries, [Wright] 1571—ab
  coagulation, anticoagulative action of sympathicolytics, Paris, 1551
  Coagulation, Intravenous Clotting: See Thrombosis
  coagulation (Lee-White clotting test) in amniotic fluid embolism, [Reid & others] *227
  coagulation, vitamins and antivitamins in, Italy, 1453
  concentration, hemoglobin determinations, 484
  contaminated lancets, disinfection of, (reply) [van Rooyen] 882
  corticotropin and cortisone effect on, [Hävermark] 1475—ab
BLOOD—Continued
  Coughing Up: See Hemoptysis
  Count: See Blood cells
  Donors: See Blood Transfusion
  Dyscrasia: See also Agranulocytosis; Anemia; Anemia, Pernicious; Erythroblastosis, Fetal; Leukemia; Polycythemia
  dyscrasia caused by drug idiosyncrasy, (Council report) [Osgood] *816; 823—E
  dyscrasia, myeloid metaplasia, [Long & others] *1619
  Eosinophils Circulating in: See Eosinophils
  Fibrin; Fibrinogen: See Fibrin
  Flow: See Blood circulation
  formation, hematopoietic depression induced by chloramphenicol, [Erslev] 87—ab
  fractions, A.M.A. Committee report, 831
  gases, congenital absence of main branch of pulmonary artery, [Steinberg & others] *1216
  glycoproteins in Whipple's disease, [Story & Sagild] *312
  Groups: See also Agglutinins, cold; Rh Factor
  groups, albumin added to serum in crossmatching, [Grove-Rasmussen] 92—ab
  groups incompatibility and icterus neonatorum, [Hoffbauer] 367—ab
  groups O: necessity of adding blood group specific substances A and B, 565
  group O Rh-negative blood, transfusion reactions, [Tovey] 1380—ab
  groups, tests for exclusion of paternity, results in 108 cases, [Unger] *1006
  hematological aspects of lupus erythematosus disseminatus, Brazil, 1358
  hematology lectures, Ohio, 537
  Hemodialysis: See Hemodialysis
  Hemoglobin: See Hemoglobin
  heparin in determination, Paris, 1651
  hydrogen ion concentration (serum) in parathion poisoning, [Annis & Williams] *594
  hypoproconvertinemia, hemorrhagic diathesis, [Van Creveld] 1482—ab
  in Feces: See Feces
  Infection of Blood: See Bacteremia
  Infusion: See Blood Transfusion
  iodine (protein bound) effect of gallbladder dyes on, (reply), [Lim] 296
  iodine (protein bound) in thyroid disease [Barrett & others] *1414
  levulose, vitamin B_{12} effect on, [Stuhlfauth] 1382—ab
  lipoproteins, study of, with electrophoresis in atherosclerosis, Paris, 1551
  Loss of: See Hemorrhage
  Menstrual: See Menstruation
  Methemoglobin in: See Methemoglobinemia
  Occult: See Feces, blood in
  oxygen, cerebral lesions due to anoxemia in respiratory paralysis, Paris, 868
  penicillin (serum), effect of probenecid on, [Frisk] 1384—ab
  penicillin, what concentration considered sufficient to "cure" streptococcic pharyngitis? 1583
  phenol level after topical use of phenol-containing preparations, [Ruedemann & Deichmann] *506
  phosphatase in cancer, Paris, 74
  phosphorus determination to differentiate types of hyperglycemia, 376
  picture as indicator of irradiation damage, [Langendorff] 1488—ab
  Placental Blood Serum: See Placenta
  Plasma: See Plasma; specific subheads under Blood; Blood Transfusion
  Platelets: See also Purpura, thrombopenic
  platelets, antiplatelet agglutinin in thrombopenic purpura, [Dausset] 1487—ab
  platelets, postoperative study of thrombocytes, [Serra] 1381—ab
  platelets, thrombocytic hypoplasia, caused by drug idiosyncrasy, (Council report) [Osgood] *816; 823—E
  platelets, transfusions of, [Minor & Burnett] *1225; 1434—E; (correction) 1543; [Stefanini] 1735—ab
  poliomyelitis virus in children, [Horstmann] 1565—ab
  potassium, hyper- and hypopotassemia, International Congress discusses, 625
  potassium, hypokalemia during p-aminosalicylic acid therapy, [McIntyre] 967—ab
  potassium, hypokalemia, paralytic ileus due to, [Grieve] 980—ab
  potassium, hypopotassemia with hypertension due to PAS, [Jones] 1488—ab
  potassium in anuric tubular nephropathy, [Dérot] 978—ab
  Preservation: See Blood Transfusion, blood bank
  Pressure: See BLOOD PRESSURE
  Program (National): See Blood Transfusion
  Proteins: See also Globulin, gamma
  proteins, hypoproteinemia, inject packed red blood cells for, [Calloway & Mowrey] *777
  proteins, radioactive iodinated serum albumin to study cerebrovascular permeability, [Ashkenazy] 86—ab
  proteins, radioactive iodinated serum albumin to study effect of cigarette smoke, [Friedell] *897

BLOOD—Continued
  proteins, serum albumin treatment for acute hemorrhagic pancreatitis, [Kenwell] 280—ab
  proteins, trichinosis with hypoalbuminemia, [Kushlan] *221
  Prothrombin: See also Blood coagulation
  prothrombin, bleeding from hypoprothrombinemia, treatment, [Pratt] *904
  prothrombin, deficiency in erythroblastosis fetalis, [Rice] 277—ab
  Serum: See various subheads under Blood
  specimens, obtaining from small infants, [Kunz] 90—ab
  Substitute: See also Plasma expanders
  substitutes, (A.M.A. Committee report) 832
  Sugar: See also Diabetes Mellitus
  sugar, effect of amphetamine, 294
  sugar, errors in laboratory procedures, [Henry & Berkman] 1166—C
  sugar, extreme hyperglycemia and severe ketosis with spontaneous remission of diabetes mellitus, [Cheng & others] *1531
  sugar, hyperglycemia after treatment with PAS, [Robel] 1488—ab
  sugar, hypoglycemia from pancreas adenoma, surgery for, [Voszschulte] 283—ab
  sugar, hypoglycemia (possibly neurogenic), (reply) [Gyland] 1184
  Sugar, Hypoglycemic Shock Therapy: See Insulin shock
  sugar, pseudohypoglycemic reactions in diabetes, [Musser & others] *1113
  sugar test in annual health examination, (reply) [Marks; Barnett] 882
  sugar tests (routine) value in detecting diabetes, [McCullagh & Zwickel] *1031
  sugar, types of hyperglycemia, 376
  Tests: See Blood groups; Syphilis serodiagnosis
  Transfusion: See BLOOD TRANSFUSION
  Types: See Blood groups
  urea content, elevated, in diagnosis of leptospirosis, 1584
  Vessels: See BLOOD VESSELS
  Volume: See also Blood circulation; Heart output
  volume, effect of cigarette smoke; radioactive iodinated albumin as indicator [Friedell] *897
  volume, left ventricular overload after closing patent ductus arteriosus, [Villamil] 1282—ab
  withdrawal from heart in pulmonary edema using catheter, [Provenzale] 1384—ab
BLOOD PRESSURE
  aortic insufficiency with rise in systolic or decrease in diastolic pressure? 198
  arterial, effects of intra-arterial and intravenous blood infusion in hemorrhagic shock, [Case & others] *208
  auscultatory gap, 1586
  effect of magnesium sulfate injections, 373
  effect of quinidine therapy for auricular fibrillation, [Weisman] *496; (correction), 950
  low, controlled hypotension in neurosurgery, [James] 768—ab
  low, controlled hypotension with intravenous Arfonad, [Nicholson] 1661—ab
  low, controlled hypotension with pendiomid, [Rutkowski] 979—ab
  low, hypotension in cardiac infarction, 1583
  low, in injuries of spinal cord, [Chor] 1471—ab
  low, procaine amide and hexamethonium in controlled hypotension, [Mason] 282—ab
  low, prolonged controlled hypotension for intracranial hemorrhages, [Schönbauer] 1180—ab
  low, treatment of acute hypotensive states with *l*-arternol [Livesay] 358—ab
  negative pressure phase in mechanical respirators, [Maloney & others] *212
  reading: sound first appears as mercury goes up at lower level than it disappears as *mercury goes down*, 483
  succinylcholine effect on, in electric shock therapy, [Adderley] 95—ab
BLOOD PRESSURE, HIGH: See also Nephrosclerosis, arteriolar
  complications: pyelonephritis, [Avendaño] 1574—ab
  complications: spontaneous idiopathic bilateral adrenal apoplexy, [Greene] *133; (another case report), [Salomon] 871—C; [Bauer] 961—C
  complications: transurethral resection, 1581
  diagnosis: Phentolamine Methanesulfonate, N.N.R., (description) 1534; (Ciba) 1535
  effect of piperoxan, arterenol and regitine on, in hemiplegia from pheochromocytoma, [ReMine & others] *808
  etiology: hypertension with hyperpotassemia due to PAS, [Jones] 1488—ab
  experimental renal, treated with renin, [Wakerlin] 1666—ab
  grand mal seizures in patients over 35, [Berlin] *794
  headache, thiocyanate intravenously for, [Saint-Pierre & others] *493
  Hypertensive Crises (film review) 186
  in New England, contrast between 1925 and 1950, [White] *303
BLOOD PRESSURE, HIGH—Continued
  malignant; symptomatic and anatomic characteristics, [Mayer] 369—ab
  of portal vein, assessed by catheterization of hepatic vein, [Paton] 1573
  pathogenesis of essential hypertension, 1435—E
  prognosis in, 917—ab
  serum cholesterol, lipid phosphorus, and Sf 12-20 lipoproteins, [Katz] 357—ab
  treatment, dibenzyline, compared with hexamethonium, veratrum viride and hydralazine, [Miller] 1375—ab
  treatment, hexamethonium, [Moyer] 1370—ab; [Ronnov-Jessen] 1672—ab
  treatment, hexamethonium and hydralazine in diastolic type, [Romney] 1734—ab
  treatment, hexamethonium bromide and veratrum viride, Israel, 260
  treatment, hexamethonium chloride orally, [Moyer & others] *1121
  treatment, hexamethonium compound, also hydergine, Denmark, 1163
  treatment, hydralazine, [Essellier] 1386—ab; [Moyer] 1459—ab
  treatment, hydralazine, in essential type, acute psychosis complicating, [Moser & others] *1329
  treatment, new methonium compound, [Smirk] 977—ab
  treatment of malignant type with hexamethonium, hydralazine, veratrum alkaloids, etc., [Sokolow] 1465—ab
  treatment, pentamethylene 1:5 bis (1'-methylpyrrolidinium), London, 548
  treatment, Phentolamine Hydrochloride, N.N.R., (description) 1533; (Ciba) 1534
  treatment, splanchnicectomy for essential type, [Smithwick & Thompson] *1501
  treatment, sympathectomy, obstetrical future of women after, [Milliez] 978—ab
  varied hypertension with arteriosclerosis, 1677
BLOOD TRANSFUSION: See also Medicolegal Abstracts at end of letter M
  Blood Bank of Dade County, Miami, Fla., conflict with blood banks operated by hospitals, 832
  blood bank, deepfreeze stored plasma; irradiation with ultraviolet light; inactivation of virus by cold, 107
  blood bank, National Blood Program, (need for blood) 538; (A. M. A. Committee report) 831; 833
  blood bank, preservation of platelets, [Stefanini] 1735—ab
  blood banking, A. M. A. resolution on, 837
  blood banks, survey, supplementary report by A.M.A., 833; (Reference Committee Report) 833
  blood group O: necessity of adding blood group specific substances A and B, 565
  donor's blood, poliomyelitis virus in, not related to hepatitis, 373
  donors, Chagas' disease in, [Passalacqua] 1481—ab
  donors, syphilis in, Sweden, 1361
  exchange transfusion in infants, 484
  intra-aortic, [Haxton] 1278—ab
  intra-aortic and intracardiac, in cardiac arrest, [Stephenson & Hinton] *500
  intra-arterial, 797—ab
  intra-arterial and intravenous infusion in hemorrhagic shock, effects on coronary blood flow and arterial pressure compared, [Case & others] *208
  intra-arterial, gangrene after, [Collins] 871—C; (reply) [Blakemore & others] 871—C
  laboratory procedures necessary to determine need for, and amount of blood required? 1585
  multiple transfusions affect results of sulfobromophthalein test? 198
  of irradiated plasma, serum hepatitis from, [Albrecht & others] *1423
  of plasma, hepatitis probably traced to, 373
  of platelets separated from normal blood, [Minor & Burnett] *1225; 1434—E; (correction) 1543; [Stefanini] 1735—ab
  of pooled irradiated dried plasma, serum hepatitis from, [Murphy & Workman] *1421
  of red cells without plasma in anemia, [Cazal] 980—ab
  rational to give an Rh-negative man a transfusion of Rh-positive blood? 107
  reaction after transfusion of group O Rh-negative blood, [Tovey] 1380—ab
  reaction, antihistamines effect on erythrocytes agglutination, [Lucia] 1468—ab
  to small infants, [Kunz] 90—ab
  viability and life span of transfused leukocytes, [Adorf] 283—ab
BLOOD VESSELS: See also Aorta; Arteries; Capillaries; Cardiovascular System; Vasomotor System; Veins
  Congress for Angiology and Histopathology (1st) Paris, 755
  Disease: See also Arteriosclerosis; Cardiovascular Disease; Phlebitis; Raynaud's Disease; Telangiectasis; Thromboangiitis Obliterans; Thrombophlebitis; Varicose Veins
BLOOD VESSELS—Continued
  disease, anticoagulants and sympathetic nerve blocks in, [Pratt] *903
  disease (peripheral), cyclospasmol for, [van Wijk] 1464—ab
  diseas[illegible]mpathectomy in, [illegible]
  diseas[illegible] Brazil, 259
  diseas[illegible] oscillometer in, [illegible]01
  effect [illegible]tions, 373
  grafts, [illegible]ion, [Deterling] 191—ab
  injuries in Korean War, arteriovenous grafts for, [Cooke] 190—ab
  International Society of Angiology, 1156; 1724
  peripheral, effect of cigarette smoke on; radioactive iodinated albumin to indicate, [Friedell] *897
BLOODLETTING: See Venesection
BLUE SHIELD: See Medical Service Plans
BLUSHING
  role of emotions in, [Frumess] *1419
BOARD: See under specific names as American Board; National Board; State Board
  Basic Science: See Basic Sciences
  of Health: See Health
  of Trustees: See American Medical Association
BOCK, Johannes C., tribute to on his death, Denmark, 1163
BODY
  Dead: See Cadavers
  distribution of radioisotopes in different parts of, International Congress discusses, 627
  Fluids: See Fluids, body
  Growth of: See Growth
  Heat, Production: See Metabolism, basal
  Organs: See Viscera
  Position of: See Posture
  state of, in injuries of spinal cord, [Chor] 1471—ab
  surface affected in burns; "Rule of Nines," [Reiss & others] *1309
  Temperature: See Fever; Temperature, Body
  Weight: See also Obesity
  weight, effect of protein, [Dole] 969—ab
BOECK'S Sarcoid: See Sarcoidosis
BOEING Airplane Company, new medical headquarters, Wash., 947
BOMBS
  Atomic: See Atomic Energy
BONE MARROW: See also Myeloma; Osteomyelitis
  agranulocytosis before and after corticotropin therapy, [McCluskey] *233
  agranulocytosis fatal after phenylbutazone therapy, [Steinberg & others] *33
  corticotropin and cortisone effect on, [Hävermark] 1475—ab
  culture in purulent meningitis, [Choremis] 1481—ab
  culture (routine) for histoplasma capsulatum, [Rohn] 1371—ab
  cytology in nonanemic subacute combined degeneration of spinal cord, [Bastrup-Madsen] 288—ab
  depression after corticotropin therapy, [Snively & others] *1223
  disease, myeloid metaplasia with terminal leukemia, [Long & others] *1619
  hypoplasia and radioactive gold, [Hahn] 474—C
  penicillin content in, during treatment of osteomyelitis, [Juch] 560—ab
  preleukemic acute human leukemia, [Block & others] *1018
BONES: See also Cartilage; Cranium; Orthopedics; Osteo—; Ribs; Spine; under names of specific bones as Humerus
  Atrophy: See Osteoporosis
  changes in renal insufficiency, [Davis] 1377—ab
  diathermy contraindicated over or near bone plates, 1678
  Dislocation: See Elbow; Hip
  Epiphyses: See Epiphyses
  Fracture: See Fractures
  grafting and saucerization in osteomyelitis, [Bickel] 975—ab
  grafting (subperiosteal) with Phemister's method, [Ritter] 1379—ab
  Hodgkin's disease localized in, [Leger] 193—ab
  necrosis (aseptic), Primer on Rheumatic Diseases, *530
  ossification centers, when do they appear? 294
  skeletal infection, erythromycin for, [Herrell & others] *1603
  structural changes around steel nails and screws in, [Collins] 652—ab
  Tuberculosis: See Arthritis, tuberculous
  tumors (malignant), practical considerations in management, [McCarroll] *297
  tumors (primary malignant), early diagnosis, [Haggart & Copel] *883
  ultrasound effect on growing bone, [De Forest] 275—ab
BOOKS: See also Bibliography; Journals; Library; Book Reviews at end of letter B
  medical, for Korea, 950; 956; 1062

BORBORYGMI
  ectopic, sounds audible in, [Bean] *1293
BORDEN Award: See Prizes
BORNHOLM Disease: See Pleurodynia, Epidemic
BORRELIA vincenti Infection: See Vincent's Infection
BOSCH, GONZALO, dismissed by medical school, Buenos Aires, 752
BOTALLO'S Duct: See Ductus Arteriosus
BOTTLES: See also Containers
  Vanopak unit and bottle, for T-tube drainage, [Watson] *814
BOWEL MOVEMENT: See Feces
BOWELS: See Intestines
BOXING
  scars on eyelids of boxers, 1738
BOYLE, JOHN
  "Mr. Boyle's Receipts" of 1724, [Sevringhaus] *1522
BOYS: See Adolescence
BRADYCARDIA
  sinus, 1184
BRAIN: See also Cerebellum; Cranium; Head; Meninges; Microcephaly; Nervous System
  abscesses, bacitracin for, [Teng] 1074—ab
  anomalies of blood vessels, complications of carotid artery ligation, [Brackett] 1271—ab
  biochemistry of, International Society discusses, 74
  circulation, effect of tolazoline on, in mitral stenosis, [Dewar] 1482—ab
  circulation, effects of intravenous ethyl alcohol and self-induced alcoholism, [Battey & others] *6
  complications of serum sickness, [Park] 1173—ab
  damage, subdural fluid complicating bacterial meningitis, [McKay & others] *387
  Disease: See also Epilepsy; Mental Disorders; Paralysis agitans
  disease, dimercaprol in acute lead encephalopathy, [Deane] 1272—ab
  disease (localized) and cerebral vascular insufficiency, [Corday] 1656—ab
  disease, postinoculation encephalopathy, [Sauer] *1315
  electroencephalographic evaluation of anesthesia during prolonged operation, [Santy] 1483—ab
  electroencephalographic records in children recovering from tuberculous meningoencephalitis, [Callens] 97—ab
  electroencephalography, Congress on, 1350
  electroencephalography in premenstrual tension, [Lamb] 1659—ab
  electroencephalography, Western Society of, 62
  hemorrhage, aminophylline intravenously for initial phase of apoplexy, [Mainzer] 194—ab
  hemorrhage cause of mental deficiency, [Levinson & Goldenberg] *786
  hemorrhage in man 73, anticoagulants after, 1584
  hemorrhage, prolonged controlled hypotension in treatment of, [Schönbauer] 1180—ab
  hemorrhage (spontaneous intracranial) in children, [Ritchie] 1557—ab
  hemorrhagic encephalopathy during arsenic therapy for asthma, [Prickman & Millikan] *1711
  infarcts (acute focal), stellate ganglion block for, [Gilbert & de Takats] 870—C
  Inflammation: See Encephalitis; Meningoencephalitis
  injuries, [Lipscomb] *590
  injuries, cause of mental deficiency, [Levinson & Goldenberg] *786
  injuries, schizophrenia and schizophrenia-like psychoses after, [Elsässer] 1276—ab
  Institute of Neurosurgery and Cerebral Investigations, 351
  lesions due to anoxemia in respiratory paralysis, Paris, 868
  pathology, kernicterus and prematurity, [Govan] 1278—ab
  roentgen study, pneumoencephalogram or ventriculogram, in grand mal seizures in those over 35, [Berlin] *794
  surgery, anterior temporal lobectomy for epilepsy, [Obrador] 90—ab
  surgery, hazards of lobotomy (prefrontal and transorbital), study of 2,000 operations: 1936-1952, [Freeman] *487
  surgery, hemispherectomy and epilepsy, [Feld] 1386—ab
  surgery, prefrontal leucotomies, follow-up, Sweden, 1552
  surgery, prefrontal lobotomy, clinical evaluation, [Kolb] *1085
  Syphilis: See Neurosyphilis
  transcerebral dielectrolysis for hemiplegia, Paris, 182
  tuberculoma, [Zamora] 94—ab
  tumor, headache of, 786—ab
  tumors, epilepsy caused by, [Paillas] 1486—ab
  tumors, grand mal seizures in patients over 35, [Berlin] *794
BRAIN—Continued
  tumors, radioactive iodinated serum albumin and scintillation counter to localize, [Ashkenazy] 86—ab
BRASS Pot: See Chimboo
BREAD: See also Flour
  Nabisco Brand Low Sodium Toast, 45
  passage of brown and white bread through human digestive tract, [McCance] 560—ab
BREAST
  atrophy after pregnancy, 198
  cancer (advanced), intensive sex steroid hormone therapy (Council report), [Kennedy & Nathanson] *1135
  cancer, hormonal therapy, International Congress, discusses 626
  cancer, intercostal dissection and radical mastectomy, [Hutchinson] 1556—ab
  cancer, prognostic significance of size, Norway, 1550
  cancer, roentgen diagnosis of calcification in, [Gershon-Cohen & others] *676
  cancer, self-examination to prevent, (reply) [Boyers] 986
  cystic disease of London, 1063
  Milk: See Milk, human
  surgery, intercostal dissection and radical mastectomy, [Hutchinson] 1556—ab
  surgery, metastasis after radical mastectomy, 1084
  surgery, palliative treatment after mastectomy, 985
BREATH: See Respiration
  Shortness of: See Dyspnea
BREATHING: See Respiration
  Artificial: See Respiration, artificial; Respirators
  Labored: See Dyspnea
BRICKER Resolution: See Treaties
BRIGHT'S Disease: See Nephritis
BRITISH: See also Great Britain; Royal College
  Anti-Lewisite: See Dimercaprol
  Health Service: See National Health Service
  Medical Association, (meeting) 540; (annual report of Council) 754; (figuring radiological work in units) 1064; (raised its annual subscription to six guineas) 1454; (prescribers' notes) 1549; (Great Britain's drug bill) 1650
  Medical Research Council: See Medical Research Council
BROADCASTING: See Radio; Television
BROMIDES
  eruption, 1392
BROMSULPHALEIN: See Sulfobromophthalein Sodium
BRONCHIECTASIS
  chronic, trypsin injection for, [Innerfield & others] *597
  Kartagener's syndrome, 533—E
  reversible occurring after pneumonia, 105
  surgical treatment, 1536—E
  treatment, trypsin (Tryptar) inhalations, [Unger & Unger] *1109
  tuberculosis and, [Müller] 365—ab
BRONCHITIS
  Asthmatic: See Asthma
  role in postoperative atelectasis, [Palmer] 192—ab
  treatment, trypsin injection, [Innerfield & others] *597
BRONCHOGRAPHY: See Bronchus, roentgen study
BRONCHOPNEUMONIA
  reversible bronchiectasis occurring after, 105
BRONCHOSCOPE
  Jackson, in resuscitating of asphyxiated newborn, [Beattie & Zwerling] *216
BRONCHUS: See also Bronchiectasis; Bronchitis; Broncho—; etc.
  cancer (bronchogenic), early diagnosis, [Dighiero] 95—ab
  cancer (bronchogenic), repeated cytological examination of sputum, [Hansen] 288—ab
  cancer (bronchogenic solitary), resection performed, [Hood & others] *1185
  cancer, exploratory thoracotomy in diagnosis and management, [Bernatz & Clagett] *379
  cancer (inoperable), dienestrol for, [Erlsbacher] 195—ab
  cancer (primary), surgical treatment, Paris, 868
  cyst, solitary circumscribed lesions of lung, [Hood & others] *1185
  Fistula: See Fistula
  infections, diethylaminoethyl ester hydriodide of penicillin G in, [Barach] 763—ab
  injuries, tracheostomy for, [Shaw] 1267—ab
  mycosis, farmer's lung, [Fuller] 1387—ab
  roentgen study, new technic, 1551
  stenosis complicating asthma, [Mears & others] *997
  tumors, adenoma (solitary), [Hood & others] *1185
  tumors discussed at medical and surgical meeting, Italy, 1165
BRONZE DIABETES: See Hemochromatosis
BROWN-GAMBLE TEST
  of spermicidal activity of contraceptives, (Council article) [Gamble] *1037
BROWN UNIVERSITY appoints health director, R. I., 617
BRUCELLOSIS
  Bang's disease in cows: vaccination not a cure, 881
  ocular complications, [Solanes] 1658—ab
  Primer on Rheumatic Diseases, *327
  treatment, *p*-aminosalicylic acid, [Terni] 193—ab
  treatment, aureomycin and vaccine, [Poli] 1484—ab
  vaccination of white rats, Mexico, 1359
BRUISES: See Contusion
BRUIT: See Noise
BUBO
  Climatic: See Lymphogranuloma, Venereal
BUCKY Rays: See Roentgen Therapy
BUDDHISM
  alopecia leprotica, relation to custom of shaving scalp of newborn, [Cleve & Pruitt] *573; [Reiss] 1652—C
BUENOS AIRES
  University of: See University
BUERGER'S Disease: See Thromboangiitis obliterans
BUILDINGS: See Hospitals
BULBAR Poliomyelitis: See Poliomyelitis
BUREAU
  A. M. A.: See American Medical Association
  of Labor Statistics, new look at prices, 1341—E
BURNING PAIN: See Causalgia
BURNS
  burned foot, [London] 767—ab
  fluid and electrolyte balance in, [Reiss & others] *1309
  methemoglobinemia from absorption of sodium nitrite through burned area, [Rozenfeld] *706
  of Eye: See Eyes, burns
  radiation, from X-ray diffraction apparatus simulating infections, [Watrous & others] *513
  treatment, exposure to air, 910—ab; (in children) [Taylor] 366—ab; [Artz] 1370—ab
  treatment, identical twin as donor of skin graft, [Blandford] 279—ab
  treatment of hydrofluoric acid burns with "triple dyes" and calcium gluconate locally, 1493
  treatment, zincasate dressing, N.N.R., (description) 611; (Hynson, Westcott & Dunning) 611
BURSITIS
  acute subacromia, Primer on Rheumatic Diseases, *528
BUTAPYRIN: See Phenylbutazone
BUTAZOLIDIN: See Phenylbutazone
BUTOPYRONOXYL (Indalone)
  Committee report on names for pesticides, *820
BUTTOCKS
  dermatitis in child from toilet seat, (reply) [Greenhouse] 108
  intramuscular injections into, (reply) [Blair] 296

Book Reviews

Abdomen
  Management of Abdominal Operations. [Maingot] 1388
  Visual Anatomy: Thorax and Abdomen, [Friedman] 878
Abernethy, John (1680-1740)
  John Abernethy: A Biography, [Thornton] 1080
Adler, F. H., Gifford's Textbook of Ophthalmology, 101
Adolescence
  Conferences on Drug Addiction among Adolescents, 1737
Adoption
  Child Adoption in the Modern World, [Kornitzer] 101
Adriani, J., Pharmacology of Anesthetic Drugs, 290
Aged: See Old Age
Alaska Vagabond Doctor Skookum: Memories of an Adventurous Life, [Hewitt] 1578
Alcoholism
  How Thin the Veil: Newspaperman's Story of His Own Mental Crack-Up and Recovery, [Kerkhoff] 372
Alexander, L., Treatment of Mental Disorder, 982
Allan, W. B., editor, Nursing in Diseases of Eye, Ear, Nose and Throat, 372
Allergy
  Clinical Allergy, [Hansel] 983
  Familial Nonreaginic Food-Allergy, [Coca] 878
  Manual of Clinical Allergy, [Sheldon & others] 563
Altschule, M. D., Bodily Physiology in Mental and Emotional Disorders, 1286
Amebiasis: Pathology, Diagnosis and Chemotherapy, [Anderson & others] 482
America
  Epidemics in Colonial America, [Duffy] 1577

[illegible] Ophthalmology and [illegible] Atlas and Textbook, 879
American Council on Education
  Television Policy for Education, [Newson] 563
American Heart Association
  Food for Your Heart: Manual for Patient and Physician, [Harvard School of Public Health] 1492
Amino Acids
  Microbiological Assay of Vitamin B-Complex and Amino Acids, [Barton-Wright] 654
Analgesia and Anesthesia in Obstetrics, [Greenhill] 772
Anatomy: See also Pathology; Physiology
  Anatomy of Autonomic Nervous System, [Mitchel] 1674
  Anatomy of Domestic Animals, [Sisson & Grossman] 1579
  Anatomy of the Nervous System: Its Development and Function, [Ranson] 562
  Functional Neuroanatomy, [Krieg] 1283
  Morris' Human Anatomy: Complete Systematic Treatise, [Schaeffer] 1491
  Oral Anatomy, [Sicher] 1391
  Surgical Applied Anatomy, (revised by L. C. Rogers), [Treves] 103
  Vesalius on the Human Brain, [Singer] 103
  Visual Anatomy: Thorax and Abdomen, [Friedman] 878
Anderson, H. H., Bostick, W. L., and Johnstone, H. G., Amebiasis: Pathology, Diagnosis and *Chemotherapy*, 482
Anesthesia
  Analgesia and Anesthesia in Obstetrics, [Greenhill] 772
  Pharmacology of Anesthetic Drugs: Syllabus for Students and Clinicians, [Adriani] 290
  Practical Management of Pain in Labour, *[Wylie] 878*
Animals
  Anatomy of Domestic Animals, [Sisson & Grossman] 1579
Annual: See Yearbook
Antibodies
  Nature and Significance of Antibody Response, [Pappenheimer] 101
Any Questions? Selection of Questions and Answers Published in *British Medical Journal*, 103
Armed Forces: See United States Armed Forces
Arms
  Pain Syndromes and Their Treatment with Special Reference to Shoulder-Arm Pain, [Tarsy] 1390
Armstrong, J. R., Lumbar Disc Lesions: Pathogenesis and Treatment of Low Back Pain and Sciatica, 878
Army Medical Library: See United States Army Medical Library
Arnold, H. L., Jr., Modern Concepts of Leprosy, 1579
Art School Self-Taught, [Price & Bishop] 291
Arteries: See Blood Vessels
Arthritis
  Comroe's Arthritis and Allied Conditions, [Hollander] 1389
  Gout and Gouty Arthritis, [Talbott] 1492
Artificial Light and Photography, [Bleck & Verbeek] 1081
Association for Research in Nervous and Mental Diseases
  Psychiatric Treatment: Proceedings of the Association, December, 1951, N. Y., [Wortis] 1576
Atlas
  Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern, [Schiersmann] 1491
  Atlas of Skull Roentgenograms, *[Epstein &* Davidoff] 1576
  Ophthalmic Pathology: Atlas and Textbook, [Friedenwald] 879
  World-Atlas of Epidemic Diseases, Part I., [Rodenwaldt & others] 197
Atomic Energy
  Biological Hazards of Atomic Energy, [Haddow] 772
Australia
  Clinical Problems of War, [Walker] 877
Autobiography: See Physicians
Aviation
  Human Factors in Air Transportation: Occupational Health and Safety, [McFarland] 1388
Bach, S. J., Metabolism of *Protein Constituents* in Mammalian Body, 773
Backache
  Lumbar Disc Lesions: Pathogenesis and Treatment of Low Back Pain and Sciatica, [Armstrong] 878
Bacteriology: See also Microbiology
  Pathologie und Bakteriologie der Endokarditis, [Böhmig & Klein] 1390
Bailey, H., and Love, R. J. M., Short Practice of Surgery, 1287
Barton-Wright, E. C., Microbiological Assay of Vitamin B-Complex and Amino Acids, 654
Baths: See Hydrotherapy
Bean, W. B., editor, Monographs in Medicine: Series 1, 983
Beckman, H., editor, 1952 Year Book of Drug Therapy (August 1951-August 1952), 773
Bedside Diagnosis, [Seward] 1287
Bensley, E. H., and Joron, G. E., Handbook of Treatment of Acute Poisoning, 1490
Biliary Tract
  Chirurgie des voies biliaires, [Champeau & Pineau] 102
Biochemistry
  Biochemistry of Disease, [Bodansky & Bodansky] 1675
  Biochemistry of Gastric Acid Secretion, [Conway] 1182
Biography: See Physicians
Biology
  Biological Hazards of Atomic Energy, [Haddow] 772
  Radiations and Living Cells, [Spear] 1738
Bladder and Bowel Training Program for Patients with Spinal Cord Disease, [Buchwald & others] 983
Blood
  Blood Cells and Plasma Proteins: Their State in Nature, [Tullis] 1390
  Blood Clotting and Allied Problems: Transactions of Fifth Conference, January 21 and 22, 1952, New York, [Flynn] 290
  Pr[illegible] anual of [illegible]
Bloo[illegible] System
  Diseases of the Heart and *Arteries*: Anatomical and Functional Disturbances of the Circulation, Treatment, [Herrmann] 1286
  Lehrbuch der Krankheiten des Herzens und der Blutstrombahn, [Lange] 1285
  Physiologic Therapy for Obstructive Vascular *Disease*, [Starr] 372
Bodansky, N., and Bodansky, O., Biochemistry of Disease, 1675
Body Temperature: Its Changes with Environment, Disease and Therapy, [Selle] 101
Böhmig, R., and Klein, P., Pathologie und Bakteriologie der Endokarditis, 1390
Bones
  Die Konservierung von Knochengewebe für Transplantationen, [Roth] 1285
Boyd, W., Introduction to Medical Science: Elementary Text on Pathology, 291
Brain
  Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern: Einführung in die Enzephalographie (Pneumenzephalographie), [Schiersmann] 1491
  Commotio Cerebri: Cerebral Concussion and Postconcussion Syndrome in Their Medical and Legal Aspects, [Courville] 1181
  Vesalius on the Human Brain, [Singer] 103
Bridgman, M., Collegiate Education for Nursing, 1080
British Empire: See Great Britain
British Medical Journal
  Any Questions? Selection of Questions and Answers Published in the *British Medical Journal*, 103
  Refresher Course for General Practitioners, 773
British Planning and Nationalization, [Lewis] 562
Bronchiectasis
  Treatment of Respiratory Emergencies Including Bulbar Poliomyelitis, [Galloway] 1284
Brown (George E.) Memorial Lecture
  Physiologic Therapy for Obstructive Vascular Disease, [Starr] 372
Browning, E., Toxicity of Industrial Organic Solvents (Revised in Consultation with Toxicology Committee), 1579
Bruetsch, W. L., Syphilitic Optic Atrophy, 877
Bryson, L., and Blanchard, R. H., editors, Facing the Future's Risks: Studies toward Predicting the Unforeseen, 289
Bubis, J. L., Women are My Problem: The Autobiography of an Obstetrician and Gynecologist, 1287
Buchwald, E., McCormack, M., and Raby, E., Bladder and Bowel Training *Program for* Patients with Spinal Cord *Disease, 983*
Buck, Gordon (1807-1877)
  Plastic Surgery at New York Hospital One Hundred Years Ago with Biographical Notes on Gurdon Buck, [Conway & Stark] 1182
Bürger, M., Einführung in die pathologische Physiologie, 1492
Byrd, O. E., compiler, Health Instruction Yearbook 1952, 103
Calcium
  Metabolic Interrelations with Special Reference to Calcium: Transactions of the Fourth Conference, N. Y., *January* 7-8, 1952, [Reifenstein] 291
Camps: See Concentration *Camps*
Cancer: See also Tumors
  Atlante di citodiagnostica del carcinoma dell'utero, [Martella] 983
Cancer—*Continued*
  Erwin Frink Smith: Story of North American Plant Pathology, [Rodgers] 879
  Fundamentals of Clinical Cancer with Emphasis on Early Diagnosis and Treatment, [Goldman] 1388
  Gastric Cancer, [Ilason] 1391
  X-Ray Sieve Therapy in Cancer: Connective Tissue Problem, [Jolles] 1673
Cardano, Girolamo (1501-1576)
  Cardano the Gambling Scholar, [Ore] 1391
Cardiology: See Heart
Cardiovascular System: See also Blood Vessels; Heart
  [illegible] Diagnosis and Treat-[illegible]
  [illegible] Cardiovascular
  [illegible] Neuro-Endocrine
  [illegible] and Treatment,
[illegible] st, H. M., Jr., Fundamentals of Clinical Orthopedics, 1080
Cells: See Cytology
Cemach, A. I., and others, editors, Grundzüge der physikalischen Therapie der Hals-, Nasen- und Ohrenkrankheiten, 1081
Chamberlain, E. N., *Symptoms and Signs in* Clinical Medicine: An *Introduction* to Medical Diagnosis, 1287
Champeau, M., and Pineau, P., Chirurgie des voies biliaires de l'adulte et du nourrisson: Technique et tactique, 102
Chatterjee, K. D., Human Parasites and Parasitic Diseases, 982
Chemistry: See also Biochemistry; Pharmacy
  Chemical Physiology of Contraction in Body and Heart Muscle, [Szent-Györgyi] 1675
  Chemistry of Food and Nutrition, [Sherman] 290
  Einführung in die chemische Physiologie, [Lehnartz] 1578
  Elsevier's Encyclopedia of Organic Chemistry, [Radt] 1579
  Practical Clinical Chemistry: Guide for Technicians, [Hiller] 1182
  Qualitative Analysis and Analytical Chemical Separations, [West & others] 879
Chenoweth, L. B., and Selkirk, T. K., School Health *Problems*, 1576
Children: See also Infants; Pediatrics
  Child Adoption in the Modern World, [Kornitzer] 101
  Clinical Electrocardiography in Children, [Nicolson] 654
Chronically Ill: See Disease
Ciba Foundation Colloquia on Endocrinology, [Wolstenholme & Cameron] 772
Clark, G. W., Vitamin Digest, 563
Clark, S. L., reviser, Anatomy of Nervous System: Its Development and Function (originally by S. W. Ranson) 562
Clinical Diagnosis: See Diagnosis
Clinical Instruction and Its Integration in the Curriculum, [Jensen & others] 197
Clinical Medicine
  Symptoms and Signs in Clinical Medicine, [Chamberlain] 1287
Clinical Problems of War, [Walker] 877
Coca, A. F., Berens, C., and others, Familial Nonreaginic Food-Allergy, 878
College: See University
Collegiate Education for Nursing, [Bridgman] 1080
Collis, W. R. F., editor, Fanconi and Wallgren's Textbook of Paediatrics, 1285
Commission on Chronic Illness
  Preventive Aspects of Chronic Disease: Conference Proceedings, March 12-14, 1951, Chicago, Illinois, 1182
Communicable Diseases, [Paul] 1286
Comroe's Arthritis and Allied Conditions, [Hollander] 1389
Concentration Camps
  Famine Disorders in German Concentration Camps, [Helweg-Larsen & others] 1390
Conferences on Drug Addiction among *Adolescents*, 1737
Conn, H. F., editor, Current Therapy 1953, 877
Contraction
  Chemical Physiology of Contraction in Body and Heart Muscle, [Szent-Györgyi] 1675
Conway, E. J., Biochemistry of Gastric Acid Secretion, 1182
Conway, H., and Stark, R. B., Plastic Surgery at the New York Hospital One Hundred Years Ago with Biographical Notes on Gurdon Buck, 1182
Courville, C. B., Commotio *Cerebri*: Cerebral Concussion and Postconcussion Syndrome in Their Medical and Legal Aspects, 1181
Cozen, L., Office Orthopedics, 1492
Cranium
  Atlas of Skull Roentgenograms, [Epstein & Davidoff] 1576
Current Therapy 1953: Latest Approved Methods of Treatment, [Conn] 877
Cyclopedia: See Encyclopedia
Cytology
  Pigment Cell Growth: *Proceedings* of Third Conference, [Gordon] 1578
Daily, R. K., and Daily, L., Jr., J. Meller Ophthalmic Surgery, 1490

Book Reviews—Continued
Deafness
  Hearing Aids: Their Use, Care, and Repair, [Mandl] 1181
Dean, R. F. A., and others, revisers, Die Ernährung: Physiologie, Pathologie, Therapie (originally by Lang & Schoen), 563
Debré, R., and Lelong, M., Pédiatrie, 1081
DeCourcy, J. L., and DeCourcy, C. B., Pheochromocytoma and General Practitioner, 879
Dehydration
  Physiologie normale et pathologique du métabolisme de l'eau, [Hamburger & Mathé] 103
Delario, A. J., Roentgen, Radium and Radioisotope Therapy, 1285
Dentistry
  Oral Anatomy, [Sicher] 1391
  Oral Surgery, [Thoma] 1391
Dermatology
  Dermatologie, [Fuhs & Kumer] 102
  Dermatology: Essentals of Diagnosis and Treatment, [Sulzberger & Wolf] 773
  Dermatology: Textbook for Nurses, [Rattner] 773
  Diseases of the Skin, [MacKenna] 102
Diabetes Mellitus
  Diabetic Manual for the Doctor and Patient, [Joslin] 1576
Diagnosis: See also Clinical Medicine
  Bedside Diagnosis, [Seward] 1287
  Clinical Diagnosis by Laboratory Methods: *Working Manual of Clinical Pathology*, [Todd & others] 1284
  Diagnostic Manual in Speech Correction: Professional Training Workbook, [Johnson & others] 772
  Diagnostic Tests in Neurology: Selection for Office Use, [Wartenberg] 1389
  Differentialdiagnose innerer Krankheiten, [Hegglin] 1674
  Essentials of Medical Diagnosis: A Manual *for Students and Practitioners*, [Horder & Gow] 1286
  Handbook of Gynaecological Diagnosis (translated by Paul Ederer), [Neuweiler] 372
  Symptoms and Signs in Clinical Medicine: An Introduction to Medical Diagnosis, [Chamberlain] 1287
Dickson, F. D., and Diveley, R. L., Functional Disorders of the Foot: Diagnosis and Treatment, 1579
Dickson, J. A., Humphries, A. W., and O'Dell, H W., Recurrent Dislocation of Shoulder, 1577
Disease: See also Diagnosis; Pathology; Therapeutics
  Biochemistry of Disease, [Bodansky & Bodansky] 1675
  Body Temperature: Its Changes with Environment, Disease and Therapy, [Selle] 101
  Patients Are People: Medical-Social Approach to Prolonged Illness, [Field] 1492
  Prevention Aspects of Chronic Disease: Conference Proceedings, March 12-14, 1951, Chicago, [Commission on Chronic Illness] 1182
Dislocation
  Recurrent Dislocation of Shoulder, [Dickson & others] 1577
Doctors: See Physicians
Dock, W., and Snapper, I., editors, Advances in Internal Medicine, Volume V, 1390
Douglas, J., and Hardy, E., How to Prepare for Marriage, 1287
Drugs: See Pharmacy
Duffy, J., Epidemics in Colonial America, 1577
Dujmušić, S., and Herz, R., Operative Thorakoskopie, 982
Duncan, G. G., editor, Diseases of Metabolism; Detailed Diagnosis and Treatment, 654
Duvall, E. M., and Hill, R., When You Marry, 1578
Ear: See Deafness; Otorhinolaryngology
Eastern States Health Education Conference
  Epidemiology of Health, [Galdston] 1491
Economics, Medical
  British Planning and Nationalization, [Lewis] 562
Edema
  Physiologie normale et pathologique du métabolisme de l'eau, [Hamburger & Mathé] 103
Ederer, P., translator, Handbook of Gynaecological Diagnosis for Practitioners and Students (originally by Neuweiller), 372
Education: See also Health
  Television Policy for Education, [Newsom] 563
Education, Medical
  Refresher Course for General Practitioners, [British Medical Journal] 773
Electrocardiography: See Heart
Elliott, F. A., and Turner, J. W. A., Clinical Neurology, 1287
Elsevier's Encyclopaedia of Organic Chemistry, [Radt] 1579
Emotions
  Bodily Physiology in Mental and Emotional *Disorders, [Altschule]* 1286
Encyclopedia
  Elsevier's Encyclopaedia of Organic Chemistry, [Radt] 1579
  Toxicity of Industrial Organic Solvents, [Browning] 1579
Endocarditis
  Pathologie und Bakteriologie der Endokarditis, [Böhmig & Klein] 1390
Endocrinology
  Ciba Foundation Colloquia on Endocrinology, [Wolstenholme & Cameron] 772
  Clinical Endocrinology, [Hurxthal & Musulin] 1675
  Die Krankheiten der endokrinen Drüsen unter Berücksichtigung ihrer Anatomie und Physiologie, [Zondek] 103
  Endocrine Treatment in General Practice, [Goldzieher & Goldzieher] 197
  Hormonal and Neurogenic Cardiovascular Disorders: Endocrine and Neuro-Endocrine Factors in Pathogenesis and Treatment, [Raab] 1080
  Organe mit innerer Sekretion, [Wallraff] 372
Environment
  Body Temperature: Its Changes with Environment, [Selle] 101
Epidemiology
  Epidemics in Colonial America, [Duffy] 1577
  Epidemiology of Health, [Galdston] 1491
  World-Atlas of Epidemic Diseases. Part I, [Rodenwaldt & others] 197
Epstein, B. S., and Davidoff, L. M., Atlas of Skull Roentgenograms, 1576
Esophagus
  Diseases of Esophagus, [Thorek] 773
  L'oesophage en cardiologie, [Segers & Brombart] 1284
  Surgery of Oesophagus, [Franklin] 482
Exercise
  Therapeutic Use of Pools and Tanks, [Lowman] 290
Eyes: See Ophthalmology
Facing the Future's Risks: Studies Toward Predicting the Unforeseen, [Bryson & Blanchard] 289
Familial Nonreaginic Food-Allergy, [Coca & others] 878
Famine Diseases in German Concentration Camps, [Helweg-Larsen & others] 1390
Fanconi and Wallgren's Textbook of Paediatrics, [Collis] 1285
Feces
  Bladder and Bowel Training Program for Patients with Spinal Cord Disease, [Buchwald & others] 983
Field, M., Patients Are People: Medical-Social Approach to Prolonged Illness, 1492
Fletcher, H., Speech and Hearing in Communication, 1285
Flynn, J. E., editor, Blood Clotting and Allied *Problems: Transactions of Fifth Conference*, January 1952, N. Y., 290
Food: See also Nutrition; Vitamins
  Chemistry of Food and Nutrition, [Sherman] 290
  Familial Nonreaginic Food-Allergy, [Coca & others] 878
  Food-Borne Infections and Intoxications, [Tanner & Tanner] 983
  Food for Life, [Gerard] 291
  Food for Your Heart: Manual for Patient and Physician, [Harvard School of Public Health] 1492
Foot
  Functional Disorders of the Foot: Diagnosis and Treatment, [Dickson & Dively] 1579
  Pathologie du pied: Physiologie, clinique, traitement médical, orthopédique et chirurgical, [Lelièvre] 983
Formulary
  University of California Hospital Formulary and Compendium, 102
Foundation. See Ciba Foundation; Josiah Macy Jr. Foundation
Franklin, R. H., Surgery of the Oesophagus, 482
Friedenwald, J. S., and others, Ophthalmic Pathology: Atlas and Textbook, 879
Friedman, S. M., Visual Anatomy: Thorax and Abdomen, 878
Froeschels, E., Dysarthic Speech (Speech in Cerebral-Palsy), 1182
Fuhs, H., and Kumer, L., Dermatologie, 102
Galdston, I., Epidemiology of Health, 1491
Galloway, T. C., Treatment of Respiratory Emergencies Including Bulbar Poliomyelitis, 1284
Gambling
  Cardano the Gambling Scholar, [Ore] 1391
Gastric: See Stomach
Gellhorn, E., Physiological Foundations of Neurology and Psychiatry, 1673
Gerard, R. W., editor, Food for Life, 291
Geriatrics: See Old Age
German Concentration Camps: See Concentration Camps
Gifford's Textbook of Ophthalmology, [Adler] 101
Gilbert, J. G., Understanding Old Age, 290
Goldberger, E., Unipolar Lead Electrocardiography and Vectorcardiography, 654
Goldhahn, R., Die Operation in Sprechstunde, 562
Goldman, L. B., Fundamentals of Clinical Cancer with Emphasis on Early Diagnosis and Treatment, 1388
Goldzieher, M. A., and Goldzieher, J. W., editors, Endocrine Treatment in General Practice, 197
Gordon, M., editor, Pigment Cell Growth: Proceedings of the Third Conference on the *Biology of Normal and Atypical Pigment* Cell Growth, 1578
Gordon, R. (pseud.), Doctor in the House, 1182
Gottlober, A. B., Understanding Stuttering, 879
Gould, S. E., editor, Pathology of the Heart, 1284
Gould, S. H., translator, Cardano the Gambling Scholar, 1391
Gout and Gouty Arthritis, [Talbott]
Grafts: See Transplantation
Great Britain
  History of the Second World War, United Kingdom Medical Series, [McNalty] 1577
Greenhill, J. P., Analgesia and Anesthesia in Obstetrics, 772
Grinker, R. R., Psychosomatic Research, 1576
Grossman, D., reviser, Anatomy of the Domestic Animals (originally by Sisson), 1579
Gynecology
  Atlante di citodiagnostica del carcinoma dell'utero, [Martella] 983
  Gynecological and Obstetrical Pathology, [Herbut] 482
  Gynecology· Diseases and Minor Surgery, [Lowrie] 196
  Handbook of Gynaecological Diagnosis, (translated by Ederer) [Neuweiller] 372
  Women Are My Problem: Autobiography of . . . Gynecologist, [Bubis] 1287
Haddow, A., editor, Biological Hazards of Atomic Energy, 772
Hall, V. E., and others, Annual Review of Physiology, Volume 15, 1579
Hamburger, J., and Mathé, G., Physiologie normale et pathologique du métabolisme de l'eau, 103
Hansel, F. K., Clinical Allergy, 983
Harrison, W J., Ocular Therapeutics, 1081
Harvard School of Public Health
  Food for Your Heart: Manual for Patient and Physician, 1492
Headache
  Der Kopfschmerz, [Pichler] 879
  Headaches: Their Nature and Treatment, [Wolf & Wolff] 372
Health
  Epidemiology of Health (Eleventh Annual Eastern State Conference), [Galdston] 1491
  Health Instruction Yearbook 1952, [Byrd] 103
  Public Health Education: Its Tools and Procedures, [Kleinschmidt & Zimand] 562
  School Health Problems, [Chenoweth & Selkirk] 1576
Hearing
  Hearing Aids: Their Use, Care and Repair, [Mandl] 1181
  Speech and Hearing in Communication, [Fletcher] 1285
Heart: See also Cardiovascular System
  Chemical Physiology of Contraction in Body and Heart Muscle, [Szent-Györgyi] 1675
  Clinical Cardiology, [Massey] 1737
  Clinical Electrocardiography in Children, [Nicolson] 654
  Clinical Electrocardiography: Textbook for Practitioners and Students (translated by D. Robertson), [Holzmann] 102
  Die neuzeitlichen Brustwand- und Extremitäten- Ableitungen in der Praxis, [Reindell & Klepzig] 1675
  Diseases of the Heart and Arteries: Anatomical and Functional Disturbances of the Circulation, Treatment, [Herrmann] 1286
  Food for Your Heart: Manual for Patient and Physician, [Harvard School of Public Health] 1492
  Heart and Circulation: Diagnosis and Treatment, [Sclar] 1675
  Lehrbuch der Krankheiten des Herzens und der Blutstrombahn, [Lange] 1285
  L'oesophage en cardiologie, [Segers & Brombart] 1284
  Pathology of the Heart, [Gould] 1284
  Unipolar Lead Electrocardiography and Vectorcardiography, [Goldberger] 654
Hegglin, R., Differentialdiagnose innerer Krankheiten, 1674
Helweg-Larsen, P., and others, Famine Disease in German Concentration Camps, 1390
Hematology: See Blood

Book Reviews—*Continued*
Hemorrhage
  Renal Cortical Necrosis of the Kidney and Concealed Accidental Hemorrhage, [Sheehan & Moore] 1490
Herbut, P. A., Gynecological and Obstetrical Pathology, 482
Herrmann, G. R., Diseases of the Heart and Arteries: Anatomical and Functional Disturbances of the Circulation, Treatment, 1286
Hewitt, J. M., Alaska Vagabond Doctor Skookum: Memories of an Adventurous Life, 1578
Hiller, A., Practical Clinical Chemistry: Guide for Technicians, 1182
Histology: See Cytology
History of Medicine: See Medical History
Hoffbauer, F. W., Liver Injury, 1578
Hollander, J. L., (editor), Comroe's Arthritis and Allied Conditions, 1389
Hollender, A. R., editor, Pharynx: Basic Aspects and Clinical Problems, 482
Holzmann, M., Clinical Electrocardiography (translated by D. Robertson), 102
Horder, Thomas Jeeves, 1st baron, and Gow, A. E., Essentials of Medical Diagnosis, 1286
Hormones: See Endocrinology
Hospitals
  Patients Are People: Medical-Social Approach to Prolonged Illness, Montefiore Hospital, [Field] 1492
  Plastic Surgery at the New York Hospital One Hundred Years Ago, [Conway & Stark] 1182
How Thin the Veil: Newspaperman's Story of His Own Mental Crack-Up and Recovery, [Kerkhoff] 372
How to Prepare for Marriage, [Douglas & Hardy] 1287
Hughes, W. F., Office Management of Ocular Diseases, 772
Human Factors in Air Transportation, [McFarland] 1388
Hurxthal, L. M., and Musulin, N., Clinical Endocrinology. Volumes I and II, 1675
Husler, J., Lust-Pfaundler-Husler Krankheiten des Kindesalters, 1491
Hydrotherapy
  Therapeutic Use of Pools and Tanks, 290
Hypnosis
  Experimental Hypnosis, [LeCron] 372
  Hypnosis in Modern Medicine, [Schneck] 1181
Iason, A. H., Gastric Cancer, 1391
Illness: See Disease
Immunohematology
  Practical Blood Grouping Methods: Manual of Immunohematology, [Wall] 1287
India
  Nutrition in India, [Patwardhan] 1283
Industry
  Handbook of Dangerous Materials, [Sax] 983
  Human Factors in Air Transportation: Occupational Health and Safety, [McFarland] 1388
  Praktische Arbeitsphysiologie, [Lehmann] 1081
  Toxicity of Industrial Organic Solvents, [Browning] 1579
Infantile Paralysis: See Poliomyelitis
Infants: See also Children; Pediatrics
  Problems of Infancy and Childhood: Transactions of Sixth Conference, [Senn] 1283
Infection
  Food-Borne Infections and Intoxications, [Tanner & Tanner] 983
Inside Story: Psychiatry and Everyday Life, [Redlich] 1673
Insurance
  Facing the Future's Risks, [Bryson & Blanchard] 289
Internal Medicine
  Advances in Internal Medicine, Volume V, [Dock & Snapper] 1390
  Handbuch der inneren Medizin, [Mohr & Staehelin] 1737
  Therapeutics in Internal Medicine, [Kyser] 1577
Jensen, D. M., Ward Administration, 291
Jensen, D. M., and others, Clinical Instruction and Its Integration in the Curriculum, 197
Johnson, W., Darley, F. L., and Spriestersbach, D. C., Diagnostic Manual in Speech Correction, 772
Joints
  Synovial Fluid Changes in Joint Disease, [Ropes & Bauer] 982
Jolles, B., X-Ray Sieve Therapy in Cancer: Connective Tissue Problem, 1673
Jorns, G., reviser, Die Operation in der Sprechstunde (originally by R. Goldhahn) 562
Josiah Macy, Jr., Foundation
  Blood Clotting and Allied Problems: Transactions of Fifth Conference, [Flynn] 290
  Conferences on Drug Addiction among Adolescents, 1737
Josiah Macy, Jr., Foundation—*Continued*
  Liver Injury, [Hoffbauer] 1578
  Metabolic Interrelations with Special Reference to Calcium: Transactions of Fourth Conference, [Reifenstein] 291
  Problems of Infancy and Childhood: Transactions of Sixth Conference, [Senn] 1283
Joslin, E. P., Diabetic Manual for Doctor and Patient, 1576
Jurisprudence: See Medical Jurisprudence
Kerkhoff, J., How Thin the Veil: Newspaperman's Story of His Own Mental Crack-Up and Recovery, 372
Kidneys
  Acute Renal Failure, Including the Use of the Artificial Kidney, [MacLean] 877
  Renal Cortical Necrosis of the Kidney and Concealed Accidental Haemorrhage, [Sheehan & Moore] 1490
Kleinschmidt, H. E., and Zimand, S., Public Health Education, 562
Kneise, O., and Schober, K. L., Die Röntgenuntersuchung der Harnorgane: Lehrbuch, 1737
Korean War
  Back Down the Ridge, [White] 196
Kornitzer, M., Child Adoption in the Modern World, 101
Krieg, W. J. S., Functional Neuroanatomy, 1283
Kyser, F. A., editor, Therapeutics in Internal Medicine, 1577
Labor: See Obstetrics
Laboratory
  Clinical Diagnosis by Laboratory Methods: Working Manual of Clinical Pathology, [Todd & others] 1284
  Practical Blood Grouping Methods: Manual of Immunohematology, [Wall] 1287
Lang, K., Der intermediäre Stoffwechsel, 1081
Lang, K., and Schoen, R., editors, Die Ernährung: Physiologie, Pathologie, Therapie, 563
Lange, F., Lehrbuch der Krankheiten des Herzens und der Blutstrombahn, 1285
Laryngology: See Otorhinolaryngology
Lawrence, J. H., and Tobias, C. A., editors, Advances in Biological and Medical Physics, 1287
LeCron, L. M., editor, Experimental Hypnosis, 372
Lectures: See Brown Lecture
Lehmann, G., Praktische Arbeitsphysiologie, 1081
Lehnartz, E., Einführung in die chemische Physiologie, 1578
Lelièvre, J., Pathologie du pied: Physiologie, clinique, traitement médical, orthopédique et chirurgical, 983
Leprosy
  Modern Concepts of Leprosy, 1579
Lewis, B. W., British Planning and Nationalization, 562
Lezius, A., Die Lungenresektionen, 1491
Lighting
  Artificial Light and Photography, [Rieck & Verbeek] 1081
Lind, James (1716-1794)
  Lind's Treatise on Scurvy: Bicentenary Volume, [Stewart & Guthrie] 1492
Liver Injury, [Hoffbauer] 1578
Lowman, C. L., Therapeutic Use of Pools and Tanks, 290
Lowrie, R. J., compiler and editor, Gynecology: Diseases and Minor Surgery, 196
Lull, C. B., and Kimbrough, R. A., editors, Clinical Obstetrics, 1391
Lungs
  Die Lungenresektionen, [Lezius] 1491
Lust-Pfaundler-Husler Krankheiten des Kindesalters, [Husler] 1491
McFarland, R. A., Human Factors in Air Transportation: Occupational Health and Safety, 1388
MacKenna, R. M. B., Diseases of the Skin, 102
MacLean, J. T., Acute Renal Failure, Including Use of Artificial Kidney, 877
McNalty, A. S., editor, History of the Second World War, United Kingdom Medical Series, 1577
Macy Foundation: See Josiah Macy, Jr., Foundation
Maingot, R., editor, Management of Abdominal Operations, 1388
Mandl, M., Hearing Aids: Their Use, Care, and Repair, 1181
Manhattan Eye, Ear and Throat Hospital
  Nursing in Diseases of the Eye, Ear, Nose and Throat, [Allan] 372
Manpower
  Policy for Scientific and Professional Manpower, [National Manpower Council] 1674
Marriage
  How to Prepare for Marriage, [Douglas & Hardy] 1287
  Sterility: Diagnostic Survey of Infertile Couple, [Williams] 196
  When You Marry, [Duvall & Hill] 1578
Martella, E., Atlante di citodiagnostica del carcinoma dell'utero, 983
Martius, H., Die geburtshilflichen Operationen, 1492
Massey, F. C., editor, Clinical Cardiology, 1737
Medical Annual: See Yearbook
Medical Economics: See Economics, Medical
Medical Education: See Education, Medical
Medical History
  Cardano the Gambling Scholar, [Ore] 1391
  Epidemics in Colonial America, [Duffy] 1577
  History of Neurological Surgery (inaccuracies noted in) [Wartenberg] 184—C
  History of the Second World War, United Kingdom Medical Series, [McNalty] 1577
  Lind's Treatise on Scurvy: Bicentenary Volume, [Stewart & Guthrie] 1492
  Vesalius on the Human Brain, [Singer] 103
Medical Jurisprudence
  Commotio Cerebri: Cerebral Concussion and Postconcussion Syndrome in Their Medical and Legal Aspects, [Courville] 1181
Medical Research Council
  Toxicity of Industrial Organic Solvents, [Browning] 1579
Medicine: See also Clinical Medicine; Diagnosis; Internal Medicine; Medical History; Physicians; Psychosomatic Medicine; Surgery
  Die Operation in der Sprechstunde, [Goldhahn] 562
  Hypnosis in Modern Medicine, [Schneck] 1181
  Monographs in Medicine: Series 1, [Bean] 983
  Patients Are People: Medical-Social Approach to Prolonged Illness, [Field] 1492
Meller Ophthalmic Surgery, [Dally & Dally] 1490
Ménière's Disease, [Williams] 1391
Mental Disorders
  Bodily Physiology in Mental and Emotional Disorders, [Altschule] 1286
  Famine Disease in German Concentration Camps: Complications and Sequels, [Helweg-Larsen & others] 1390
  How Thin the Veil: Newspaperman's Story of His Own Mental Crack-Up and Recovery, [Kerkhoff] 372
  Treatment of Mental Disorder, [Alexander] 982
Metabolism
  Der intermediäre Stoffwechsel, [Lang] 1081
  Diseases of Metabolism: Detailed Diagnosis and Treatment, [Duncan] 654
  Metabolic Interrelations with Special Reference to Calcium: Transactions of Fourth Conference, [Reifenstein] 291
  Metabolism of Protein Constituents in the Mammalian Body, [Bach] 773
Microbiology: See also Bacteriology
  Microbiological Assay of Vitamin B-Complex and Amino Acids, [Barton-Wright] 654
  Textbook of Virology, [Rhodes & van Rooyen] 1181
Midwifery: See Obstetrics
Military Medicine: See Korean War; World War II
Mitchell, G. A. C., Anatomy of Autonomic Nervous System, 1674
Modern Treatment: A Guide for General Practice, [Smith & Wermer] 1286
Mohr, L., and Staehelin, R., Handbuch der inneren Medizin, 1737
Moroney, J., Surgery for Nurses, 290
Morris' Human Anatomy: Complete Systematic Treatise, [Schaeffer] 1491
Mouth
  Oral Anatomy, [Sicher] 1391
  Oral Surgery, [Thoma] 1391
Muscles
  Chemical Physiology of Contraction in Body and Heart Muscle, [Szent-Györgyi] 1675
Narcotics
  Conferences on Drug Addiction among Adolescents, 1737
National Health Service of Great Britain
  British Planning and Nationalization, [Lewis] 562
National Manpower Council
  Policy for Scientific and Professional Manpower, 1674
Nervous System: See Neurology
Neurology: See also Brain
  Anatomy of Autonomic Nervous System, [Mitchell] 1674
  Anatomy of Nervous System: Its Development and Function, [Ranson] 562
  Clinical Neurology, [Elliott & Turner] 1287
  Diagnostic Tests in Neurology: Selection for Office Use, [Wartenberg] 1389
  Functional Neuroanatomy, [Krieg] 1283
  Lumbar Disc Lesions: Pathogenesis and Treatment of Low Back Pain and Sciatica, [Armstrong] 878

Book Reviews—Continued
Neurology—*Continued*
  Physiological Foundations of Neurology and Psychiatry, [Gellhorn] 1673
  Syphilitic Optic Atrophy, [Bruetsch] 877
Neurosurgery
  History of Neurological Surgery, (inaccuracies noted in) [Wartenberg] 184—C
Neuweiler, W., Handbook of Gynaecological Diagnosis (translated by Ederer), 372
New York Academy of Medicine
  Conferences on Drug Addiction among Adolescents, 1737
  Nature and Significance of Antibody Response, [Pappenheimer] 101
Newsom, C. V., editor, Television Policy for Education: Proceedings of Television Programs Institute . . . . April 1952, 563
Nicolson, G. H. B., Clinical Electrocardiography in Children, 654
Nose: See Otorhinolaryngology
Nurses and Nursing
  Bladder and Bowel Training Program for Patients with Spinal Cord Disease, [Buchwald & others] 983
  Clinical Instruction and Its Integration in the Curriculum, [Jensen & others] 197
  Collegiate Education for Nursing, [Bridgman] 1080
  Dermatology: Textbook for Nurses, [Rattner] 773
  Introduction to Medical Science: Elementary Text on Pathology, [Boyd] 291
  Nursing in Diseases of Eye, Ear, Nose and Throat: From Manhattan Eye, Ear and Throat Hospital, [Allan] 372
  Surgery for Nurses, [Moroney] 290
  Textbook of Physiology, [Zoethout] 291
  Ward Administration, [Jensen] 291
Nutrition: See also Food; Vitamins
  Chemistry of Food and Nutrition, [Sherman] 290
  Die Ernährung: Physiologie, Pathologie, Therapie, [Lang & Schoen] 563
  Food for Life, [Gerard] 291
  Nutrition in India, [Patwardhan] 1283
Obstetrics
  Analgesia and Anesthesia in Obstetrics, [Greenhill] 772
  Clinical Obstetrics, [Lull & Kimbrough] 1391
  Die geburtshilflichen Operationen, [Martius] 1492
  Gynecological and Obstetrical Pathology, [Herbut] 482
  Practical Management of Pain in Labour, [Wylie] 878
  Women Are My Problem: The Autobiography of an Obstetrician and Gynecologist, [Bubis] 1287
Occupational Medicine: See Industry
Office Management of Ocular Diseases, [Hughes] 772
Office Orthopedics, [Cozen] 1492
Old Age
  Understanding Old Age, [Gilbert] 290
Operations: See Surgery
Ophthalmology
  Gifford's Textbook of Ophthalmology, [Adler] 101
  J. Meller Ophthalmic Surgery: Handbook of Surgical Operations on Eyeball and Its Appendages, [Daily & Daily] 1490
  Nursing in Diseases of Eye, Ear, Nose and Throat: From Manhattan Eye, Ear and Throat Hospital, [Allan] 372
  Ocular Therapeutics, [Harrison] 1081
  Office Management of Ocular Diseases, [Hughes] 772
  Ophthalmic Pathology: Atlas and Textbook, [Friedenwald & others] 879
  Syphilitic Optic Atrophy, [Bruetsch] 877
Oral: See Mouth
Ore, O., Cardano the Gambling Scholar, 1391
Orthopedics
  Functional Disorders of the Foot: Diagnosis and Treatment, [Dickson & Dively] 1579
  Fundamentals of Clinical Orthopedics, [Casagrande & Frost] 1080
  Handbook of Orthopaedic Surgery, [Shands & Raney] 773
  Office Orthopedics, [Cozen] 1492
Otorhinolaryngology
  Anzeige und Ausführung der Eingriffe an Ohr Nase und Hals, [Uffenorde] 289
  Grundzüge der physikalischen Therapie der Hals-, Nasen- und Ohrenkrankheiten, [Cemach & others] 1081
  Nursing in Diseases of Eye, Ear, Nose and Throat: From Manhattan Eye, Ear and Throat Hospital, [Allan] 372
Pain
  Pain Syndromes and Their Treatment with Special Reference to Shoulder-Arm Pain, [Tarsy] 1390
  Practical Management of Pain in Labour, [Wylie] 878
Pappenheimer, A. M., Jr., editor, Nature and Significance of the Antibody Response, 101
Paralysis
  Dysarthic Speech (Speech in Cerebral-Palsy), [Froeschels] 1182
Parasitology
  Human Parasites and Parasitic Diseases, [Chatterjee] 982
Pathology: See also Disease
  Clinical Diagnosis by Laboratory Methods: Working Manual of Clinical Pathology, [Todd & others] 1284
  Einfuhrung in die pathologische Physiologie, [Bürger] 1492
  Gynecological and Obstetrical Pathology, [Herbut] 482
  Introduction to Medical Science: Elementary Text on Pathology, [Boyd] 291
  Ophthalmic Pathology: Atlas and Textbook, [Friendenwald & others] 879
  Pathologie und Bakteriologie der Endokarditis, [Böhmig & Klein] 1390
  Pathologie of the Heart, [Gould] 1284
  Physiologie normale et pathologique du métabolisme de l'eau, [Hamburger & Mathé] 103
Patients Are People: Medical-Social Approach to Prolonged Illness, [Field] 1492
Patwardhan, V. N., Nutrition in India, 1283
Paul, H., Control of Communicable Diseases, 1286
Pediatrics: See also Children; Infants
  Fanconi and Wallgren's Textbook of Paediatrics, [Collis] 1285
  Lust-Pfaundler-Husler Krankheiten des Kindesalters, [Husler] 1491
  Pédiatrie, [Debré & Lelong] 1081
  Problems of Infancy and Childhood: Transactions of Sixth Conference, March 1952, N. Y., [Senn] 1283
Perkins, J. E., and Feldmann, F. M., You and Tuberculosis, 197
Pharmacy: See also Chemistry
  1952 Year Book of Drug Therapy, [Beckman] 773
  Pharmacology and Toxicology of Uranium Compounds: Chronic Inhalation and Other Studies, [Voegtlin & Hodge] 562
  Pharmacology of Anesthetic Drugs: Syllabus for Students and Clinicians, [Adriani] 230
  University of California Hospital Formulary and Compendium of Useful Information, 102
Pharynx: Basic Aspects and Clinical Problems, [Hollender] 482
Pheochromocytoma and the General Practitioner, [DeCourcy & DeCourcy] 879
Photography
  Artificial Light and Photography, [Rieck & Verbeek] 1081
Physical Medicine
  Grundzüge der physikalischen Therapie der Hals-, Nasen- und Ohrenkrankheiten, [Cemach & others] 1081
Physicians: See also Medicine; Surgery
  biographies: Alaska Vagabond Doctor Skookum, Memories of an Adventurous Life [Hewitt] 1578
  biographies: Gurdon Buck, Plastic Surgery at New York Hospital 100 Years Ago, [Conway & Stark] 1182
  biographies: John Abernethy: A Biography, [Thornton] 1080
  biographies, Women Are My Problem: Autobiography of an Obstetrician and Gynecologist, [Bubis] 1287
  Doctor in the House, [Gordon] 1182
  Refresher Course for General Practitioners, [British Medical Journal] 773
Physics
  Advances in Biological and Medical Physics, Volume III, [Lawrence & Tobias] 1287
  Speech and Hearing in Communication, [Fletcher] 1285
Physiological Chemistry: See Chemistry
Physiology: See also Anatomy; Pathology
  Annual Review of Physiology, Volume 15, [Hall & others] 1579
  Bodily Physiology in Mental and Emotional Disorders, [Altschule] 1286
  Physiological Foundations of Neurology and Psychiatry, [Gellhorn] 1673
  Physiologie normale et pathologique du métabolisme de l'eau, [Hamburger & Mathé] 103
  Praktische Arbeitsphysiologie, [Lehmann] 1081
  Textbook of Physiology, [Zoethout] 291
Pichler, E., Der Kopfschmerz, 879
Pictures: See Photography
Pigment Cell Growth: Proceedings of the Third Conference, [Gordon] 1578
Plants
  Erwin Frink Smith: Story of North American Plant Pathology, [Rodgers] 879
Poisoning: See Toxicology
Policy for Scientific and Professional Manpower, [National Manpower Council] 1674
Poliomyelitis
  Poliomyelitis, [Russell] 1389
  Poliomyelitis: Papers and Discussions Presented at Second International Poliomyelitis Conference, 289
  Therapeutic Use of Pools and Tanks, [Lowman] 290
  Treatment of Respiratory Emergencies Including Bulbar Poliomyelitis, [Galloway] 1284
Pools: See Swimming Pools
Preventive Aspects of Chronic Disease: Conference Proceedings, 1951, Chicago, [Commission on Chronic Illness] 1182
Price, M., and Bishop, A. T., Art School Self-Taught, 291
Proteins
  Metabolism of Protein Constituents in Mammalian Body, [Bach] 773
Psychiatry: See also Mental Disorders
  Inside Story: Psychiatry and Everyday Life, [Redlich] 1673
  Physiological Foundations of Neurology and Psychiatry, [Gellhorn] 1673
  Psychiatric Treatment: Proceedings of the Association, December 1951, N. Y., [Wortis] 1576
  Treatment of Mental Disorder, [Alexander] 982
Psychology
  Contribution Toward [illegible] Theory and [illegible] Volumes I and [illegible]
Psychosomatic Medicine
  Psychosomatic Research, [Grinker] 1576
Public Health: See Health
Questions and Answers
  Any Questions? A Selection of Questions and Answers Published in the *British Medical Journal*, 103
Raab, W., Hormonal and Neurogenic Cardiovascular Disorders, 1080
Radiology: See also Roentgenology
  Roentgen, Radium and Radioisotope Therapy, [Delario] 1285
Radt, F., editor, Elsevier's Encyclopaedia of Organic Chemsitry, 1579
Ranson, S. W., Anatomy of the Nervous System: Its Development and Functions, (revised by S. L. Clark) 562
Rattner, H., Dermatology: Textbook for Nurses, 773
Redlich, F., compiler, Inside Story: Psychiatry and Everyday Life, 1673
Rehabilitation
  Bladder and Bowel Training Program for Patients with Spinal Cord Diseases, [Buchwald & others] 983
Reifenstein, E. C., editor, Metabolic Interrelations with Special Reference to Calcium: Transactions of Fourth Conference, 291
Reindell, H., and Klepzig, H., Die neuzeitlichen Brustwand- und Extremitsten-Ableitungen in der Praxis, 1675
Respiration
  Treatment of Respiratory Emergencies Including Bulbar Poliomyelitis, [Galloway] 1284
Rhodes, A. J., and van Rooyen, C. E., Textbook of Virology, 1181
Rieck, G. D., and Verbeek, L. H., Artificial Light and Photography, 1081
Robertson, D., translator, Clinical Electrocardiography (originally by M. Holzmann) 102
Rodenwaldt, E., Bachmann, L., and others, editors, World-Atlas of Epidemic Diseases, Part I, 197
Rodgers, A. D., III, Erwin Frink Smith: Story of North American Plant Pathology, 879
Roentgenology: See also Radiology
  Atlas of Skull Roentgenograms, [Epstein & Davidoff] 1576
  Die Röntgenuntersuchung der Harorgane: Lehrbuch, [Kneise & Schober] 1737
  L'oesophage en cardiologie: Etude radiologique de l'oesophage . . . [Segers & Brombart] 1284
  Roentgen, Radium and Radioisotope Therapy, [Delario] 1285
  X-Ray Sieve Therapy in Cancer: Connective Tissue Problem, [Jolles] 1673
Rogers, L. C., reviser, Surgical Applied Anatomy, (originally by Treves) 103
Ropes, M. W., and Bauer, W., Synovial Fluid Changes in Joint Disease, 982
Roth, H., Die Konservierung von Knochengewebe für Transplantionen, 1285
Russell, W. R., Poliomyelitis, 1389
Sachs, E., History of Neurological Surgery, (inaccuracies noted in), [Wartenberg] 184—C
Sax, N. I., Handbook of Dangerous Materials, 983
Schaeffer, J. P., editor, Morris' Human Anatomy, 1491
Schiersmann, O., Archiv und Atlas der normalen [illegible] typischen [illegible] Enze- [illegible] 1491
Schr[illegible] 1181
School Health Problems, [Chenoweth & Selkirk] 1576
Schools, Medical: See Education, Medical
Sciatica
  Lumbar Disc Lesions: Pathogenesis and Treatment of Low Back Pain and Sciatica, [Armstrong] 878
Sclar, M., Heart and Circulation: Diagnosis and Treatment, 1675
Scurvy
  Lind's Treatise on Scurvy: Bicentenary Volume, [Stewart & Guthrie] 1492

Book Reviews—Continued
Segers, M., and Brombart, M., L'esophage en cardiologie, 1284
Selle, W. A., Body Temperature: Its Changes with Environment, Disease and Therapy, *101*
Senn, M. J. E., editor, Problems of Infancy and Childhood: Transactions of Sixth Conference, March 17 and 18, 1952, 1283
Seward, C., Bedside Diagnosis, 1287
Sex: See Marriage; *Sterility*
Shands, A. R., and Raney, R. B., Handbook of Orthopaedic Surgery, 773
Sheehan, H. L., *and* Moore, H. O., Renal Cortical Necrosis of the Kidney and Concealed Accidental Haemorrhage, 1490
Sheldon, J. M., Lovell, R. G., and Mathews, K. P., Manual of Clinical Allergy, 563
Sherman, H. C., Chemistry of Food and Nutrition, 290
Shoulder
  Pain Syndromes and Their Treatment with Special Reference to Shoulder-Arm Pain, [Tarsy] 1390
  Recurrent Dislocation of Shoulder, [Dickson & others] 1577
Sicher, H., Oral Anatomy, 1391
Sickness: See Disease
Singer, C., Vesalius on the Human Brain, 103
Sisson, S., Anatomy of the Domestic Animals, 1579
Skin: See Dermatology
Skull: *Cranium*
Smith, A., and Wermer, P. L., editors, Modern Treatment: Guide for General Practice, 1286
Smith, Erwin Frink (1854-1927)
  Story of North American Plant Pathology, [Rodgers] 879
Sociology
  Patients Are People: Medical-Social Approach to Prolonged Illness, [Field] 1492
Solvents
  Toxicity of Industrial Organic Solvents, *[Browning] 1579*
Speech
  Diagnostic Manual in Speech Correction: *Professional Training Workbook, [Johnson & others]* 772
  Dysarthic Speech (Speech in Cerebral-Palsy), [Froeschels] 1182
  Speech and Hearing in Communication, [Fletcher] 1285
  Understanding Stuttering, [Gottlober] 879
Spinal Cord
  Bladder and Bowel Training Program for Patients with Spinal Cord Disease, [Buchwald & others] 983
Spine
  Lumbar Disc Lesions: Pathogenesis and Treatment of Low Back Pain and Sciatica, [Armstrong] 878
Starr, I., Physiologic Therapy for Obstructive Vascular Disease, 372
Stewart, C. P., and Guthrie, D., editors, Lind's Treatise on Scurvy: Bicentenary Volume, 1492
Stomach
  Biochemistry of Gastric Acid Secretion, [Conway] 1182
  Gastric Cancer, [Iason] 1391
Sulzberger, M. B., and Wolf, J., Dermatology: Essentials of Diagnosis and Treatment, 773
Surgery: See also Neurosurgery
  Chirurgie des voies biliaires de l'adulte et du *nourrisson: Technique et tactique*, [Champeau & Pineau] 102
  Die Lungenresektionen, [Lezius] 1491
  Gynecology: Diseases and Minor Surgery, *[Lowrie] 196*
  Handbook of Orthopaedic Surgery, [Shands & Raney] 773
  J. Meller Ophthalmic Surgery, [Daily & Daily] 1490
  Management of Abdominal Operations, [Maingot] 1388
  Operative Thorakoskopie, [Dujmušić & Herz] 982
  Oral Surgery, [Thoma] 1391
  Plastic Surgery at New York Hospital One Hundred Years Ago and Biographical Notes on Gurdon Buck, [Conway & Stark] 1182
  Short Practice of Surgery, [Bailey & Love] 1287
  Surgery for Nurses, [Moroney] 290
  Surgery in World War II: Physiologic Effects of Wounds, [Army Medical Library] 1283
  Surgery of the Oesophagus, [Franklin] 482
  Surgical Applied Anatomy (revised by M. Rogers) [Treves] 103
Swimming Pools
  Therapeutic Use of Pools and Tanks, [Lowman] 290
Symptoms and Signs in Clinical Medicine, [Chamberlain] 1287
Synovial Fluid Changes in Joint Disease, [Ropes & Bauer] 982
Syphilitic Optic Atrophy, [Bruetsch] 877
Szent-Györgyi, A., Chemical Physiology of Contraction in Body and Heart Muscle, 1675
Talbott, J. H., Gout and Gouty Arthritis, 1492
Tanner, F. W., and Tanner, L. P., Food-Borne Infections and Intoxications, 983
Tarsy, J. M., Pain Syndromes and Their Treatment with Special Reference to Shoulder-Arm Pain, 1390
Technologists
  Practical Clinical Chemistry: Guide for Technicians, [Hiller] 1182
Teeth: See Dentistry
Telephone
  Speech and Hearing in Communication, [Fletcher] 1285
Television Policy for Education, 1952, [Newsom] 563
Temperature
  Body Temperature: Its Changes with Environment, Disease and Therapy, [Selle] 101
Therapeutics: See also Pharmacy
  Current Therapy 1953: Latest Approved Methods of Treatment for the Practicing Physician, [Conn] 877
  Handbook of Treatment of Acute Poisoning, [Bensley & Joron] 1490
  Modern Treatment: Guide for General Practice, [Smith & Wermer] 1286
  Therapeutics in Internal Medicine, [Kyser] 1577
Thoma, K. H., Oral Surgery, 1391
Thoracoscopy
  Operative Thorakoskopie, [Dujmušić & Herz] 982
Thorax
  Visual Anatomy: Thorax and Abdomen, [Friedman] 878
Thorek, P., Diseases of the Esophagus, 773
Thornton, J. L., John Abernethy: A Biography, 1080
Throat: See Otorhinolaryngology
Tissues: See Histology
Todd, J. C., Sanford, R. H., and Wells, B. B., Clinical Diagnosis by Laboratory Methods: Working Manual of Clinical Pathology, 1284
Toxicology
  Handbook of Dangerous Materials, [Sax] 983
  Handbook of Treatment of Acute Poisoning, [Bensley & Joron] 1490
  Pharmacology and Toxicology of Uranium Compounds: Chronic Inhalation and Other Studies, [Voegtlin & Hodge] 562
  Toxicity of Industrial Organic Solvents, [Browning] 1579
Transplantation
  Die Konservierung von Knochengewebe fur Transplantation, [Roth] *1285*
Trauma: See War
Treatment: See Therapeutics
Treves, F., Surgical Applied Anatomy (revised by L. C. Rogers) 103
Tuberculosis
  Famine Disease in German Concentration Camps, [Helweg-Larsen & others] 1390
  You and Tuberculosis, [Perkins & Feldmann] 197
Tullis, J. L., Blood Cells and Plasma Proteins: Their State in *Nature*, 1399
Tumors: See also Cancer
  Pheochromocytoma and the General Practitioner, [DeCourcy & DeCourcy] 879
Uffenorde, W., Anzeige und Ausführung der Eingriffe on Ohr, Nase und Hals, 289
Understanding Old Age, [Gilbert] 290
Understanding Stuttering, [Gottlober] 879
United Kingdom: See Great Britain
United States Armed Forces
  Institute of Pathology, Ophthalmic Pathology: Atlas and Textbook, [Friedenwald & others] 879
United States Army Medical Library
  Surgery in World War II: Physiologic Effects of Wounds, 1283
University of California Hospital
  Formulary and Compendium of Useful In*formation*, *102*
Uranium
  Pharmacology and Toxicology of Uranium Compounds, [Voegtlin & Hodge] 562
Urology: See also Kidneys
  Die Röntgenuntersuchung der Harnorgane: Lehrbuch, [Kneise & Schober] 1737
Uterus
  Atlante di citodiagnostica del carcinoma dell'utero, [Martella] 983
Vectorcardiography: See Heart
Vertigo
  Ménière's Disease, [Williams] 1391
Vesalius on the Human Brain, [Singer] 103
Veterinary Medicine
  Anatomy of the Domestic Animals, [Sisson & Grossman] 1579
Viruses
  Textbook of Virology, [Rhodes & van Rooyen] 1181
Vision: See Ophthalmology
Visual Anatomy: Thorax and Abdomen, [Friedman] 878
Vitamins
  Microbiological Assay on Vitamin B-Complex and Amino Acids, [Barton-Wright] 654
  Vitamin Digest, [Clark] 563
Voegtlin, C., and Hodge, H. C., editors, Pharmacology and Toxicology of Uranium Compounds: Chronic Inhalation and Other Studies, 562
Walker, A. S., Clinical Problems of War, 877
Wall, R. L., Practical Blood Grouping Methods: Manual of Immunohematology, 1287
Wallraff, J., Organe mit innerer Sekretion: Kurgefasstes Lehrbuch der Endokrinologie für Studierende und Arzte, 372
War: See Korean War; World War II
Ward Administration, [Jensen] 291
Wartenberg, R., Diagnostic Tests in Neurology: Selection for Office Use, 1389
Water: See also Hydrotherapy
  Physiologie normale et pathologique du métabolisme de l'eau, [Hamburger & Mathé] 103
Welder, A., editor, Contributions toward Medical Psychology: Theory and Psychodiagnostic Methods, Volumes I and II, 563
West, P. W., Vick, M. M., and LeRosen, A. L., Qualitative Analysis and Analytical Chemical Separations, 879
When You Marry, [Duvall & Hill] 1578
White, W. L., Back down the Ridge, 196
Williams, H. L. Ménière's Disease, 1391
Williams, W. W., Sterility: Diagnostic Survey of the Infertile Couple, 196
Wolf, S., and Wolff, H. G., Headaches: Their Nature and Treatment, 372
Wolstenholme, G. E. W., and Cameron, M. P., editors, Ciba Foundation Colloquia on Endocrinology, 772
Women Are My Problem, [Bubls] 1287
World-Atlas of Epidemic Diseases. Part I, *[Rodenwaldt & others]* 197
World War II (1939-1945)
  Clinical Problems of War: Volume I: Australia in the War of 1939-1945, [Walker] 877
  Famine Disease in German Concentration Camps: Complications and Sequels, [Helweg-Larsen & others] 1390
  History of the Second World War, United Kingdom Medical Series, [McNalty] 1577
  Surgery in World War II: Physiologic Effects of Wounds, [Army Medical Library] 1283
Wortis, S. B., editor, Psychiatric Treatment: Proceedings of the Association, N. Y., 1576
Wounds
  Surgery in World War II: Physiologic Effects of Wounds, [Army Medical Library] 1283
Wylie, W. D., Practical Management of Pain in Labour, 878
Yearbook
  Annual Review of Physiology, Volume 15, [Hall & others] 1579
  Health Instruction Yearbook 1952, [Byrd] 103
  1952 Year Book of Drug Therapy (August, 1951-August, 1952), [Beckman] 773
You and Tuberculosis, [Perkins & Feldmann] 197
Zoethout, W. D., Textbook of Physiology, 291
Zondek, H., Die Krankheiten der *endokrinen* Drüsen unter Berücksichtigun ihrer Anatomie und Physiologie, 103

C

C.I.O.: See Industrial Trade Unions
CACHEXIA: See Pituitary, Simmond's disease
  Bronze: See Hemochromatosis
CADAVERS
  procedures to protect handlers of bodies of persons dead from contagious diseases, 108
CADMIUM
  poisoning (chronic), sign of, 514—ab
CAFÉ AU LAIT SPOTS
  treated with benoquin, [Lerner & Fitzpatrick] *577
CAFFEINE
  correct dosage for premature infant? 1585
CALAMINE
  lotion, blood phenol level after topical use, [Ruedemann & Deichmann] *506
CALCANEUS
  painful heel, 880
CALCIFICATION
  in breast cancer, roentgen diagnosis, [Gershon-Cohen & others] *676
  in scrotum from meconium peritonitis, [Olnick & Hatcher] *582
  soft tissue calcifications in cord lesions, [Liberson] *1010
CALCIUM
  ascorbate counteract *domestic* water fluoridation, [McCormick] 1663—ab
  chloride streptomycin complex, local pain from intramuscular injection, [Long & others] *25

CALCIUM—Continued
  chloride, useful in cardiac resuscitation, [Leeds] *1411
  diet low in, prevention of kidney stones; also treatment, 1082
  gluconate and "triple dyes" treatment of hydrofluoric acid burns, 1493
  in vegetable juices, London, 1650
CALCULI: See Kidneys
CALIFORNIA
  Civil Defense Organization, mobile first aid station to protect industrial plants (picture) 1450
  Medical Ass'n. Cancer Commission practical detection methods for cancer, [Garland] 75—C; [Cameron] 870—C
  University of: See University
CALLUS
  deep-seated, excise plantar condyles of metatarsal head for, [DuVries] *1202
CALORIES
  high caloric fat emulsion orally for total feeding, [Kuhl] 1468—ab
CALSULFHYDRYL
  treatment of ocular burns, [Harley] 1460—ab; [Havener] 1558—ab
CAMPHO-PHENIQUE
  blood phenol level after topical use, [Ruedemann & Deichmann] *506
CAMPHOR
  value of nebulized spray containing, 1290
CAMPS
  Diabetic: See Diabetes Mellitus
  for children with heart disease, Ill., 462
  summer, new directory of, for Rhode Island's boys and girls, 464
  Tourist: See Tourist Camps, Hostels
CANADA
  cobalt sixty beam therapy unit presented by, to Great Britain, 72
  graduates of medical schools in, examined for licensure in U. S., 1952, *421
CANAL ZONE
  Medical Association of Isthmian Canal Zone, [Nelson] 1652—C
CANCER: See also under name of organ and region affected
  Adenocarcinoma: See Adenocarcinoma
  American Cancer Society, (fellowships) 343; 747; (prize) 745; (grants) 857; 948; (award to Dr. Smith) 859; (cancer diagnosis) [Cameron] 870—C; (gift from Philip Solomon Memorial Club) 1937; (approves training institutes) 1641
  as chronic disease, 1144—E
  biochemistry and, Paris, 74
  cause of disability in patients at Cuyahoga County Nursing Home [Goodman] *1336
  Chorionic: See Choriocarcinoma
  control in Belgium, 1255
  control, meetings on, Texas, 173
  D cell in, [Sirtori] 285—ab
  diagnosis, practical methods developed by Cancer Commission of California Medical Association, [Garland] 75—C; [Cameron] 870—C
  etiology: food coloring [Wingler] 1489—ab
  etiology: intestinal parasites? 1678
  etiology, trauma as cocarcinogen in oil worker, [Kotin] 1170—ab
  fellowships as memorial to Senator Taft, 1719
  fellowships by American Cancer Society, 343; 747
  fellowships by New Jersey State Department of Health, 1347
  fund solicitations, unauthorized, Conn., 1346
  graduate courses, Tenn., 250
  in aged, diabetes complicating, 106
  in children, 706—ab
  in identical twins, 532—E
  in physicians, [Wynder] 1072—ab
  incidence in white and Negro races, [Rigdon] 191—ab
  metastasis after radical mastectomy, 1084
  metastasis to abdomen, peritoneoscopy in, [Zoeckler & others] *1617
  multiple arsenical, of skin and internal organs, [Sommers] 1170—ab
  multiple primary, [Phillips] 1569—ab
  narcotics and, 1413—ab
  polyvinyl pyrrolidone excretion determined by radiocarbon, [Loeffler] 1461—ab
  precancerous, gastric ulcer and its malignancy, [Soave] 561—ab
  prizes, National Cancer Award by American Cancer Society, 745
  research, Argonne Cancer Research Hospital at University of Chicago dedicated, 247
  research, Fetterman Memorial Fund, Ohio, 1055
  research grant for by Atomic Energy Commission, Mich., 59
  research grant, S. C., 1248
  research grants by American Cancer Society, 857; 948
  research grants by Damon Runyon Memorial Fund for Cancer Research, Inc., 1056; 1721
  Rocky Mountain Cancer Conference, July 8-9, Denver, 861
  seminar at Broadmoor, Col., 1539
CANCER—Continued
  thyroid nodules relation to, [Williams] 92—ab
  treatment, aureomycin and nitrogen mustard, [Bateman] 1170—ab
  treatment, cobalt, cancer weapon installed, N. Y., 946
  treatment, cobalt sixty beam unit presented by Canada to Great Britain, 72
  treatment, critical evaluation of chemotherapy, [Gellhorn] 1171—ab
  treatment, dienestrol, for inoperable type, [Erlsbacher] 195—ab
  treatment, intra-arterial injection of introgen mustard, [Grady] 762—ab
  treatment, Norwegian Radium Hospital: annual report for 1951, 549
  treatment of pain, [Bonica] 972—ab
  treatment, relief of pain in with transorbital lobotomy, [Freeman] *487
  treatment, triethylene melamine, [Lenti] 370—ab
CANDICIDIN
  action on pathogenic fungi, [Kligman] 1565—ab
CANDIDA Infection: See Moniliasis
CANNABIS SATIVA (marihuana)
  traffic in dangerous drugs, London, 72
CANNED Products for Infants: See Infants, feeding
CAPILLARIES: See also Telangiectasia
  fragility, determination by petechiometer, [Perry] 1373—ab
  permeability (abnormal), report by Congress for Angiology, 755
CAPPS Prize: See Prizes
CAR Window Fractures: See Elbow
CARAT: See Pinta
CARBOHYDRATES: See also Glucose
  as plasma expanders, [Hartman & Behrmann] *1118
CARBOLIC ACID: See Phenol
CARBOMYCIN (Magnamycin)
  cross resistance to antibiotics, [Finland] 190—ab
CARBON
  radioactive, to determine excretion of polyvinyl pyrrolidone, [Loeffler] 1461—ab
CARBON DIOXIDE
  inhalation, in epilepsy, [Putnam & Rothenberg] *1400
  inhalation in muscular rigidity, [Fay] *1623
  inhalation in neuroses, [Moriarty] 650—ab
  inhalation in psychoneurotic disturbances, [Silver] 1175—ab
  inhalation in stuttering, 106
CARBUNCLE
  diabetic, trypsin injection for, [Innerfield & others] *597
  Malignant: See Anthrax
CARCINOGENESIS: See Cancer etiology
CARCINOMA: See Cancer
CARDBOARD
  waxed, vs. glass sputum containers, 107
CARDIAC: See Heart
  Muscle: See Myocardium
CARDIOGRAPHY: See Heart, roentgen study
CARDIOLOGY: See Heart
CARDIOPERICARDIOPEXY
  treatment of coronary disease, [Thompson & Plachta] *678
CARDIOSPASM: See Stomach
CARDIOVASCULAR DISEASE: See also Blood Vessels, disease; Heart disease
  collagenosis with parietal thrombosis, [Becker] 968—ab
  hypercholesteremia in, effect of Monichol, [Sherber & Levites] *682
  Hypertensive: See Blood Pressure, High
  syphilis, in New England, contrast between 1925 and 1950, [White] *303
  traineeship at St. Michael's Hospital, N. J., 1154
CARDIOVASCULAR SYSTEM: See also Arteries; Blood Vessels; Capillaries; Heart; Vasomotor System; Veins
  angiocardiography, electrocardiographic changes during, [Angelino] 1077—ab
  angiocardiography in congenital absence of main branch of pulmonary artery, [Steinberg & others] *1216
  effect of arterenol and epinephrine on, [Bardelli] 1487—ab
  in elderly, [Grinschpun] 979—ab
  research, course in, 342
CARDITIS: See Heart inflammation
CARE
  medical books for Korea, 950
  medical help for India: A.M.A. endorsed project with, 1045—E
CAREERS
  for maturing workers, Mich., 945
  subsequent, of applicants for Rockefeller research fellowships, [Bowen] *693
CARIES: See Teeth, caries
CARNOTITE ORE
  dust, acute toxicity, [Wilson] 1459—ab
CAROTID ARTERY: See Arteries
CARRIERS: See Disease carriers
CARS: See Automobiles
CART
  hospital: armchair therapy cart, [Klain] *517
CARTILAGE
  costal, painful nonsuppurative swelling of, Tietze's syndrome, [Motulsky & Rohn] *504
  implants (preserved ox), absorption of [Gibson] 1477—ab
CASE
  Finding: See Diabetes Mellitus; Tuberculosis
  Records: See Medical Record Librarians; Medical Records
CASEIN
  hydrolyzed, thyroid active protein derived from, in obesity, [Bertola] 285—ab
CASSELBERRY Award: See Prizes
CASSIA: See Cinnamon
CAST: See Colon
CASTIGLIONE, ARTURO, death, 950
CASTRATION
  in transvestism, [Hamburger & others] *391; [Wiedeman] 1167—C; [Ostow] 1552—C
CASUALTIES: See Accidents; Automobiles, accidents; Korean War
CAT: See Cats
CATARACT
  in octogenarian, 880
  Institute, *708
  roentgen-ray, 334—E
  treatment, danger of fish lens protein injection, [Breinin] *698; (National Research Council report) *707; 710—E
CATHARTICS: See also Enema
  esophageal obstruction due to Serutan, [Melamed & Marck] *318
  potassium depletion from overuse of laxatives, [Schwartz] 970—ab
CATHETERIZATION: See Heart, catheterization; Veins, hepatic
CATHETERS
  intratracheal, for resuscitation of newborn, [Mann] *1333; (correction) 1643
  introduced into right atrium to withdraw blood from heart, [Provenzale] 1384—ab
  withdrawal prevented by urethral spasm, [Johnson] 1564—ab
CATIONS
  exchange resins, effects on arterial hypertension, congestive heart failure, and edema of various causes, [de Soldati] 1279—ab
CATS
  how to obliterate odor of urine in house from, 200
  scratch disease and Parinaud's oculoglandular syndrome, 1717—E
CATTLE: See Cows
CAUSALGIA
  following Colles' fracture, 292
CAVAL Veins: See Vena cava
CAVERNOUS SINUS
  thrombophlebitis, penicillin for Turkey, 1455
CAVITIES: See Teeth caries
CECUM
  "blood blister," [Bockus & others] *1228
CELIAC PLEXUS
  accessory adrenal glands, [Graham] 88—ab
CELLS: See also Blood cells; Cancer cells; Cytology; Lymphocytes; Tissues
  Chromaffin: See Pheochromocytoma
  D cell in cancer, [Sirtori] 285—ab
  multiplication of viruses in strain of mammalian cells, [Scherer] 273—ab
CELLULITIS
  treatment of streptococcic infections in the home, [Breese] *10
CENTRAL COUNCIL
  for Health Education in England, seminar in health education, 1443
CEPHALIN
  cholesterol flocculation, persistent positive, 295
CEREBELLUM
  tuberculoma, [Zamora] 94—ab
CEREBRAL: See Brain
  Palsy: See Paralysis, cerebral
CEREBROSPINAL FLUID
  cell count in poliomyelitis, 564; [Grulee] *1587
  deterioration in dementia paralytica, [Kral] 1070—ab
  examination necessary in poliomyelitis? 198
  Hyperalbuminosis of: See Guillain-Barré Syndrome
  rhinorrhea (temporary), hazards of lobotomy, [Freeman] *489
  subdural fluid complicating bacterial meningitis, [McKay & others] *387
CEREBROSPINAL SYPHILIS: See Neurosyphilis
CEREBRUM: See Brain
CER-O-CILLIN Chloroprocaine; See Penicillin O
CERTIFICATES: See American Board; Basic Sciences; National Board of Medical Examiners; Vaccination
  Birth Certificate: See Birth
CERUMEN
  removal of; its composition, 1585
CERVIX Uteri: See Uterus
CESAREAN SECTION
  Cesarean Hysterectomy (Porro) PMF 5204, (film review) 477
  indicated in Rh-negative mother? 295
  repeated, 14—ab
  severe cervical laceration complicating pregnancy and labor, 375
  types of, compared, [Falls] 1266—ab
CEVITAMIC ACID: See Acid, ascorbic
CHAGAS Disease: See Trypanosomiasis
CHAIR: See Wheelchair

CHAIRMAN'S Address: See American Medical Association, Section on....
CHARITY: See Medically Indigent
CHARLOTTE, NORTH CAROLINA
  opinion survey and inventory of medical care, personnel, and facilities, [Welton] *1145
CHARTER
  Patients: See Patients
CHEILITIS: See Lips
CHEMICAL LABORATORY of the A.M.A.: See American Medical Association
CHEMISTRY: See Biochemistry
  A.M.A Council on Pharmacy and Chemistry: See American Medical Association
CHEMOTHERAPY: See also under specific substances as *Nitrogen Mustard*
  in renal tuberculosis, [Blystad] 97—ab
CHEST: See Thorax
CHICAGO
  University of: See *University*
CHICAGO MEDICAL SCHOOL
  gift to, Ill., 615
CHICKENPOX
  in pregnancy: effect on fetus, [Kaye] 85—ab
  Kaposi's varicelliform eruption, [Grist] 368—ab
  period of communicability, 880
CHILDBIRTH: See Labor
CHILDREN: See also Infants; Maternity; Parents; Paternity; Pediatrics; under names of specific diseases
  Accidents to. See *Accidents*
  acrodermatitis enteropathica, treated with diodoquin, [Dillaha & others] *589; (correction) 1643
  Adolescent: See Adolescence
  adrenocortical response to corticotropin, cortisone, and ascorbic acid in children vs. adults, [Sprechler] 1275—ab
  Camps for: See Camps; Diabetes Mellitus
  cancer in, 706—ab
  crime in, *Belgium*, 350
  Crippled: See Crippled
  cruelty to, commercial exploitation of mistreatment, 1044—E; (London) 1258
  dermatitis of buttocks of child from toilet seat, (reply) [Greenhouse] 108
  emotionally disturbed, treatment centers for, 956
  fever convulsions in early childhood, [Betke] 1379—ab
  fever in 3 siblings, 1392
  fluid balance in, 18—ab
  Food as Children See It (film review), 648
  Growth of: See Growth
  hearing impairments in, [Kinney] 1374—ab
  Hospitals for: See Hospitals, children's
  left-handed, training, 1584
  life expectancy with congenital heart disease, [MacMahon] 1477—ab
  malnutrition in, use of vitamins in, Mexico, 958
  management of severe illness in childhood, [May] 1270—ab
  mental retardation in, [Levinson & Goldenberg] *781
  nervous, 1431—ab
  of Service Men: See Emergency Maternity and Infant Care Program
  orphanage, exclude children from, with primary tuberculosis? 1496
  ossification centers, time of appearance, 294
  Personal Health for Girls (film review), 648
  Personal Hygiene for Boys (film review), 648
  pica, 1292
  poisoning (acute) from isopropyl alcohol sponging of small boy, [Garrison] *317
  poisoning fatal from toxaphene, [Pollock] 1473—ab
  poisoning from DDT, [Keizer] 1484—ab
  poisoning simulating diabetic coma *from eating berries*, [Rascoff & Wasser] *1134
  poisoning with acetylsalicylic acid (aspirin) in young child, [Gardner] 975—ab
  Preface to a Life (film review), 272
  preschool mortality, London, 1549
  retarded, when should they be *institutionalized?* [Jolly] 1557—ab
  rheumatic fever in; home care; Montefiore Hospital project, [Young & Rodstein] *987
  Salmonella Montevideo infection from powdered *egg yolk*, [Southard & others] *1432
  school, primary tuberculosis in, Turkey, 1455
  shoes, [Matlin] 1167—C
  U. S. Children's Bureau: *See* Emergency Maternity and Infant Care *Program*
  vaccination of child with eczema? *dangerous?* 1392
CHILDS (Jane Coffin) Memorial *Fund*: See Foundations
CHILE
  Chilean Congress on Rheumatic Diseases, Nov. 28-29, 957
  University of: See University
CHIMBOO
  home treatment to cure stomachache, India, (pictures) [Oliver] 1456—C
CHINESE
  alopecia leprotica *relation* to custom of shaving scalp of newborn, [Cleve & Pruitt] *573; [Reiss] 1652—C
  to participate in WHO program, 861
CHIROPRACTORS
  examined in basic sciences, 1952, also 1927-1952, *450; *451
CHLORAL HYDRATE
  treatment of delirium tremens, [Smith] *384
[illegible] (Chloromycetin)
  [illegible] 1363
  [illegible] Australia, 624
  effect on fungal and bacterial flora, [McGovern] 973—ab
  hematopoietic depression induced by, [Erslev] 87—ab
  toxicity: optic neuritis after enormous doses, [Katlan] 1732—C
  treatment, combined AOC in refractory urinary tract infections, [Eisenberg] *1302
  treatment, fatal fungus infections (Candida) complicating, [Brown & others] *206
  treatment of bacterial meningitis, [Alexander] *662
  treatment of whooping cough, London, 1257
  treatment plus cortisone for typhoid, [Dana] 1574—ab
  treatment plus oxytetracycline in endocarditis, [Garrido Lecca & Tola] *913
CHLORIDES: See Calcium chloride; Potassium chloride; Sodium chloride; Succinylcholine chloride
  in Blood: See Blood
  Isotonic Solution of 3 Chlorides: See Ringer's Solution
CHLORINE
  chlorination of water; history, 520—ab
  dioxide, hazards of "improved" flour, London, 353; [Pollock] 1066—C; [Sheldon] 1179—ab
CHLORMERODRIN (Neohydrin)
  N.N.R., (description) 331; (Lakeside) 331
  therapeutic evaluation of diuretics given orally, [Greiner & Gold] *1130; [Leff] 1563—ab
CHLOROBUTANOL
  preparing and maintaining ophthalmic solutions, (Council report) [Theodore & Feinstein] *1631
*di*CHLORODIPHENYLTRICHLOROETHANE: See [illegible] DT)
[illegible] See Nitrogen Mustard
[illegible] Chloramphenicol
[illegible] DDT; Dicophane; Neo-[illegible]
  A.M.A *Committee* report on pesticides, *820
  fly control with, *effect* on diarrheal disease, [Lindsay] 1566—ab
  toxicity, poisoning in infant, [Keiser] 1484—ab
CHLOROPHYLL
  as deodorant, [Brocklehurst] 876—ab; 1716—E
  [illegible] chemical structure; [illegible] 39—C
[illegible] O: See Peni-[illegible]
CHLOROQUINE
  [illegible] lupus erythe-[illegible] *1428
  name accepted by Council, 709
CHOLANGIOGRAPHY: See Bile Ducts
CHOLANGITIS: See Bile Ducts
CHOLECYSTITIS: See Gallbladder inflammation
CHOLECYSTOGRAPHY: See Gallbladder, roentgen study
CHOLERA
  diagnosis, Bandi's test in, [Ghosal] 283—ab
CHOLESTEATOMA
  indications for mastoidectomy, 1584
CHOLESTEROL
  biosynthesis of, 1435—E
  in Blood: See Blood
  [illegible] monichol, [Sherber & [illegible]
  [illegible] Society, discusses, 74
  relation to foods and atherosclerosis, Norway, 73
CHOLINE: See also *Acetylcholine*: *Succinylcholine*
  effect on [illegible] of a polysorbate [illegible] (monichol), [Sher[illegible]
  eye wash containing methylene blue and, 1498
CHOLINESTERASE
  Anticholinesterase: See Anticholinesterase
  in Blood: See Blood
[illegible] McCarroll] *298
[illegible] factors of malignancy,
[illegible] See Choriocarcinoma
[illegible] See Medicolegal Abstracts at end of letter M
[illegible] se: See Panniculitis
[illegible] ue to absence of, [van
[illegible] 1385—ab
  [illegible] Cell Tumor: See Pheochromocytoma
CHROMIUM
  chromate workers, study of health of by U.S. P.H.S., 270
  dermatitis, dimercaprol (BAL) ointment in, [Cole] 187—ab
CHROMIUM—Continued
  poisoning, symptomatic pernicious anemia in, [Steim] 1575—ab
CHROMOBLASTOMYCOSIS
  in Mexico, 1360
CHROMOMYCOSIS: See Chromoblastomycosis
CHRONAXIA
  vestibular, in *poisoning*, Paris, 182
CHRONICALLY ILL: See Disease, chronic
CHRYSOTHERAPY: See Gold treatment
CHYLOTHORAX
  diagnosis; treatment, 565
CIBA Award: See Prizes
CICATRIX
  contraction in scars, 1586
  effect of vitamin C deficiency on healed wounds (scar tissue) 334—E
  impenetrable obliteration of thoracic esophagus, [Barbosa & others] *1103
  scars *on eyelids of* boxers, 1738
CIGARETTES: See Tobacco
CILIARY BODY: See Iridocyclitis
CINEMA: See Moving Pictures
CINNAMON
  oil of, in tooth *paste causes* cheilitis, [Laubach & others] *484
CIRCULATION: See Blood circulation
CIRCULATORY DISEASE: See Cardiovascular Disease
CIRCUMCISION
  procaine anesthesia used for, cause gangrene of penis? 293; (reply) [Palmer] 1678
CIRRHOSIS: See Liver
CITATIONS: See Prizes
CITIZENS
  Advisory Commission on Medical Care of Dependent Military Personnel, 349
  A.M.A. resolution on responsibility of U. S. [illegible] medical care of, 731; 733
  [illegible] ted States citizenship
  [illegible] A.M.A., 459
  [illegible] American Red Cross, [illegible] port, 831
  [illegible] according to states, A.M.A. Council survey, 872
  medical teams, Wis., 859
  plant protection mobile first aid for, California, (picture), 1450
  U. S. Civil Defense Administration recommends first aid stations, (picture) 179
CLAVICLE
  fractures, discussed at medical and surgical meeting, Italy, 1164
CLEANSING AGENTS: See Detergents; Soap
CLEFT Palate: See Palate
CLEVELAND
  Health Museum, (medical stamp exhibit) 464; 946; (popular health television shows) 1541; 1640; (experience in organizing a health museum) [Martin] *1626
CLIMACTERIC: See Menopause
CLIMATE: See also Seasons; Weather
  endemic dental fluorosis and, [Galagan] 1566—ab
  psoriasis and, 775
CLIMATIC Bubo: See Lymphogranuloma, Venereal
CLINICAL
  Center of National Institutes of Health, new, (photograph) 623
  judgment and laboratory data, 708—ab
  Laboratories: See Laboratories
  Laboratory Technicians: See Technologists
  Research: See Research
  Thermometers: See Thermometers
CLINICS: See also Alcoholism; Crippled children; Orthopedics; Psychiatry
  annual clinic day, Michigan, 536
  new clinic building at Lloyd Noland Hospital, Fairfield, Ala. 535
  Northwest Clinic, Minot, silver anniversary, N. D., 617
CLOTHING: See also Hosiery; Shoes
  summer, color of, and passage of ultraviolet rays, 292
  transvestism: man who wants to dress as a [illegible] others] *391; [Wiede-[illegible] 1552—C
  [illegible] coagulation
  Intravenous: [illegible] Thrombo-[illegible]
C[illegible] coagulation
COBALT
  cancer weapon installed, N. Y., 946
  radioactive, gamma radiation effect on passive immunity, [Hale] 1668—ab
  sixty beam therapy unit presented by Canada to Great Britain, 72
COCARBOXYLASE
  effect on urinary excretion of riboflavin in heart disease, Italy, 1452
CODE of Ethics: See Ethics, Medical
CODEINE
  mixtures and compounds on oral prescriptions, A.M.A. resolution on amending Harrison Narcotic Act, 849
COFFEE: See Caffeine
COITUS: See also *Contraception*; Semen; Spermatozoa
  postcoital test to evaluate contraceptive jelly, (Council article) [Cohen & Kaye] *1042
COLCHICINE
  treatment of gout, [Smyth] *1106

COLD: See also Arctic; Frostbite
  Agglutinins: See Agglutinins
  deepfreeze stored plasma; ultraviolet irradiation; inactivation of virus by cold, 107
  injury, nonbattle injuries in Korean War, 1448
  physiology of organism subjected to deep cooling, [Giaja] 652—ab
  therapeutic use, artificial hibernation, Paris, Laborit method, 262
  therapeutic use in thyroid storm, 1504—ab
  therapeutic [illegible] autonomic drugs in [illegible] 1280—ab
COLDS: See
COLECTOMY: See Colon surgery
COLITIS: See also Ileocolitis
  amebic dysentery; reinfection after 28 years, 1084
  spastic, irritable bowel syndrome, 1585
  ulcerative acute, primary resection of colon in, [Ripstein] *1093
  ulcerative acute, trypsin injection for, [Innerfield & others] *597
  ulcerative, adrenal apoplexy during corticotropin therapy, [Wilson & Roth] *230
  ulcerative chronic, carcinoma of colon complicating, [Weckesser & Chinn] *905
  ulcerative, ileostomy plus subtotal colectomy for, [Crile] 1664—ab
COLLAGEN DISEASE
  cardiovascular collagenosis with parietal thrombosis, [Becker] 968—ab
  Primer on Rheumatic Diseases, *411
COLLAPSE: See Shock
  Pulmonary: See Lungs
  Therapy: See Pneumothorax, Artificial
COLLEGE: See University
  Education: See Education, Medical, premedical
  Medical: See Schools, Medical
  of Physicians: See Royal College
  Students: See Students; Students, Medical
COLLES Fracture: See Radius
COLLOIDS
  fluid and electrolyte balance in burns, [Reiss & others] *1309
COLON: See also Cecum; Colitis; Colostomy
  cancer, complicating chronic ulcerative colitis, [Weckesser & Chinn] *905
  diverticulosis, spontaneous perforation of sigmoid colon, [Fitts, Anderson & others] *1427
  lesions, *dilute contrast mediums in diagnosis*, [Potter] 1567—ab
  perforation, hazards of barium meals, London, 71
  perforation (spontaneous) of sigmoid colon in diverticulosis, [Fitts & Anderson] *1427
  roentgen study, dilute contrast medium in, [Potter] 1567—ab
  solid cast of *inner outline of, evacuated by* apparently healthy woman, 656
  surgery, anastomosis of transverse colon to rectum or anus, Brazil, 470
  surgery, hyperchloremic acidosis after ureterosigmoidostomy, 334—E
  surgery, ileostomy plus subtotal colectomy in ulcerative colitis, [Crile] 1664—ab
  surgery, primary resection in acute ulcerative colitis, [Ripstein] *1093
  tumors, polyps, search for with high-voltage radiography [Gianturco] 1566—ab
COLOR: See also Dyes; Pigmentation; Stains and Staining
  of operating room walls, 1586
  of summer clothing and passage of ultraviolet rays, 292
  Television: See Television
COLORED People: See Negroes
COLORIMETER
  hemoglobin determinations, 484
COLOSTOMY: See also Ileostomy
  Xaid Colostomy Set, 239
COLOSTRUM
  Primiparous: See Primostrum
COLUMBIA UNIVERSITY
  200th anniversary, library and auditorium building (pictures), 249
COMA
  Diabetic: See Diabetes Mellitus, coma
  Insulin Coma Therapy: See Insulin shock treatment
COMBAT: See Korean War
COMMISSION: See also Joint Commission; list of Societies and Other Organizations at end of letter S
  on Organization of Executive Branch of U. S. Government, A.M.A. views on S. 106 and S. 1514, letter from Dr. Lull, 54
COMMISSIONS: See Armed Forces; Army, U. S.
COMMISSUROTOMY: See Mitral Valve stenosis
COMMITTEE: See also Advisory Committee; Cooper Committee; Joint Committee; list of Societies and Other Organizations at end of letter S
  A.M.A.: See American Medical Association
  liaison, to organizations concerned with care of veterans, *732; 733; (Reference Committee* reports) 739; 740
  on Careers in Nursing, statistics on professional nursing service in hospitals, *154; *155; *156
  on Indigent Care: See American Medical Association Council on Medical Service
  to hear complaints from public, list of titles of, 833; (Reference Committee report) 834
COMMUNICABLE DISEASES: See also Epidemics; Infectious Diseases
  future of, 231—ab
  incidence, first half of 1953, U. S., 1351
  what is the difference between *contagious disease* and communicable disease? 108
COMMUNITY
  Health Council: See Health councils
  plan for care of poliomyelitis patients in respirators, [Wallace & Baumgartner] *1506
COMPENSATION: See Income; Wages
  of Physicians: See Fees
COMPOUND E: See Cortisone
COMPOUND F: Hydrocortisone
COMPOUNDS (listed by number)
  2,4-D, relief from ragweed, 1144—E
  42 WARF, *819
  118, *819
  193-AP, [Kirsner] 649—ab
  0229-U, [Kirsner] 649—ab
  0385-U, [Kirsner 649—ab
  0407-U, [Kirsner] 649—ab
  497, *819
  605-E, *819
  612, *820
  2050A M. & B., [Smirk] 977—ab
  3422, *819
  3956, *819
  5473 BA treatment of peptic ulcer, 1499
COMPULSORY Health Insurance: See Insurance, sickness
CONCEPTION: See Fertility; Pregnancy; Sterility
  Control of: See Contraception
CONDUCT: See Ethics, Medical; Success
CONDYLOMA
  acuminatum, treatment, 1581
CONFEDERACIÓN Médica Panamericana, Dr. J. del C. Acosta appointed president, 753
CONFERENCE: See also National Conference; World Conference; under list of Societies at end of letter S
  on *alcohol studies, Wis., 746*
  on physicians placement service activities, (Council article) *552
CONGELATIO: See Frostbite
CONGO RED
  treatment plus streptomycin in tuberculous meningitis, [Pescetti] 1179—ab
CONGRESS: See also International Congress; *National Congress; World Congress*; list of Societies and Other Organizations at end of letter S
  for Angiology and Histopathology (1st), Paris, 755
  of Brazilian Section (2nd) of International College of Surgeons, Brazil, 70
  of Industrial Medicine (2nd) Argentina, 752
  of Industrial Organizations (C.I.O.): See Industrial Trade Unions
  U. S.: See United States Congress
  U. S., legislation considered by: See Laws and Legislation, federal
CONJUNCTIVA
  sensitivity to contrast materials, 655
CONJUNCTIVITIS
  Granular: See Trachoma
  Reiter's syndrome, *529; [Hall] 1169—ab
  Reiter's syndrome, corticotropin in, [Larson] 1070—ab
CONSTIPATION: See Cathartics
CONSTITUTION (anatomic): See Body; Psychosomatic Medicine
CONSTITUTION (governmental)
  A.M.A.: See American Medical Association
  U. S.: See United States
CONSUMERS' PRICE INDEX
  old and new base periods for medical care price indexes, 1341—E; (Bureau article) [Dickinson] *1365
CONTACT
  Dermatitis: See Dermatitis venenata
CONTAGION: See Infection
CONTAGIOUS DISEASE: See Infectious Disease
CONTAINERS: See also Bottles
  glass vs. waxed cardboard, for sputum, 107
CONTEST: See Prizes
CONTINENTALAIR Iceless Oxygen Tent Model M-4000, 531
CONTINUATION Courses: See Education, Medical, graduate
CONTRACEPTION
  improved test of spermicidal activity of contraceptives without dilution or mixing, (Council article) [Gamble] *1037
  India speeds birth control program, 1156
  Lasker awards in planned parenthood, 1441
  postcoital test to evaluate contraceptive jelly, (Council article) [Cohen & Kaye] *1042
CONTRACTION
  in scars, 1586
CONTRACTURE
  Volkmann's, after elbow dislocation, arterectomy for, [Sarkar] 96—ab
CONTUSION
  what is cause of tendency to bruise readily, in absence of overt disease? 1289
CONVALESCENCE
  early ambulation, 132—ab
  early ambulation to prevent postoperative thrombosis, [Borgstrom] 1669—ab
  hospitals for, *statistics on, *145; *150*
CONVALESCENCE—Continued
  of nephritis in young boy: prolonged bed rest dependent on urinalysis, *107*
  Rehabilitation: See Rehabilitation
CONVALESCENT
  Gamma Globulin: See Globulin
CONVENTION: See American Medical Association
CONVULSIONS: See also Eclampsia; Epilepsy
  convulsant effects of isoniazid vs. iproniazid, *[Reilly & others] *1317*
  febrile, [Lennox] 1474—ab
  fever convulsions in early childhood, [Betke] 1379—ab
  glossopharyngeal neuralgia with; intracranial section of glossopharyngeal nerve and vagus nerve for, [Richburg & Kern] *703
  grand mal seizures in patients over 35 years, *[Berlin] *794*
  hazards of lobotomy, [Freeman] *489
  in infant after injection of diphtheria-tetanus toxoids (alum-precipitated) and pertussis vaccine, 1289
  mental retardation in children, [Levinson & Goldenberg] *781
  Therapeutic: See Electric shock treatment; *Insulin shock*
  treatment, magnesium sulfate, 373
COOKING AND EATING UTENSILS
  sanitation; bacterial count, [Ridenour] 359—ab
COOPER COMMITTEE
  Hamilton (E. S.) statement before House Committee on extension of "Doctor-Draft Law," *166*
COOPERATIVE for American Remittances to Europe: See CARE
COPPER
  sulfate incorporated in flooring of shower rooms to prevent mycosis of feet? 292
COR
  Pulmonale: See Heart hypertrophy
CORAL ATOLL Research Program, 1162
CORAMINE: See Nikethamide
CORNEA
  Inflammation: See Keratitis
CORNELL UNIVERSITY
  Medical College, Griffis Medical Library fund at, N. Y., 946
  training in industrial psychiatry, 240—E
CORONARY
  Arteries: See Arteries, coronary
  Arteriosclerosis: See Arteriosclerosis
  Thrombosis: See Thrombosis, coronary
COROTHION: See Parathion
CORPSE: See Cadavers
CORPUS LUTEUM
  Hormone: See Progesterone
CORTICOIDS
  urinary excretion (postoperative), [Hardy] 1378—ab
CORTICOTROPIN (ACTH)
  adrenal cortical function measured with, 1129—ab
  adrenocortical response to, in children vs. adults, [Sprechler] 1275—ab
  effects, modified by potassium, [Bennett] 1467—ab
  effects on nitrogen balance in elderly, [Kountz] 1665—ab
  International Congress on Biochemistry discuss action, Paris, 74
  preparations, potency of, [Bates] 1372—ab
  toxicity: adrenal apoplexy during treatment of ulcerative colitis, [Wilson & Roth] *230
  toxicity; aplastic anemia, [Snively & others] *1223
  toxicity: idiopathic adrenal apoplexy, [Greene] *133; [Bauer] 961—C
  Treatment: See also Agranulocytosis; Asthma; Cyanide poisoning; Gout; Narcotics, addiction; Reiter's Syndrome; Skin disease; Tabes Dorsalis
  treatment, effect on blood and bone marrow, [Hävermark] 1475—ab
  treatment, herpes zoster occurring during, 1394
  treatment, intravenous, in Guillain-Barré syndrome, [Newey & Lubin] *137; [Blood & others] *139
  treatment, long-term results, Denmark, 352
  treatment or cortisone in rheumatic fever indicated in all cases? 1493
  treatment plus adrenal steroids in alcoholism, [Voegtlin] 1074—ab
  treatment plus antibiotic for peritonitis, [de Ruiter] 97—ab
  treatment plus cortisone, diabetes developed during, [Bookman] 1268—ab
  treatment plus cortisone in arthritis, Chile, 957
  treatment plus cortisone in asthma, Sweden, 264
  treatment plus cortisone in eclampsia, [Howdon] 360—ab
  treament plus cortisone in intractable anogenital pruritus, [Turell] *806
  treatment plus cortisone in pediatrics, National Congress on Pediatrics discuss, Chile, 351
  treatment plus cortisone in pemphigus vulgaris, [Aquilina] 478—ab
  treatment plus cortisone in protracted rheu*matic carditis in children*, [Taran] 1069—ab

CORTICOTROPIN—Continued
  treatment plus cortisone in rheumatic carditis, [van Creveld] 1179—ab
  treatment plus cortisone in Schoenlein-Henoch syndrome, [Philpott] 766—ab
  treatment plus cortisone in snake venom poisoning, [Hoback & Green] *236; (correction: no such creature as a "copperhead moccasin") [Joseph] 1067—C
  treatment plus cortisone in temporal arteritis, [Whitfield] 768—ab
  treatment plus cortisone (prolonged) of rheumatoid arthritis, [Fischer] 981—ab: [Bratlund] 981—ab
  treatment, rupture of abdominal wall through stria cutis distensa during, [Lawrence & others] *1526
  treatment, use and abuse in dermatology, [O'Leary & Erickson] *1695
CORTIGEN B_6
  treatment of postoperative vomiting, [Colombo] 1484—ab
CORTISONE (Compound E)
  acetate, N.N.R., (Schering) 920
  adrenocortical response to, in children vs. adults, [Sprechler] 1275—ab
  effect on nitrogen balance in elderly patients, [Kountz] 1665—ab
  effect on rate of blood absorption from the eye, [Benedict] 479—ab
  European symposium on, 344
  Hydro-: See Hydrocortisone
  International Society on Biochemistry discuss action of, Paris, 74
  protein substances in, generalized pruritus from, 1581
  protein synthesis and, [Cagan] 628—C
  radioactive, available, 1357
  Society of Ophthalmology discusses, Paris, 868
  toxicity: chronic hallucinosis, Paris, 263
  Treatment: See also Arachnoiditis; Arthritis; Rheumatoid; Asthma; Gout; Keratitis; Myocarditis; Paralysis, facial; Shoulder; Spiders, bites from; Thyroiditis
  treatment, adrenogenital syndrome before and after, [Franckson] 1573—ab
  treatment, effect on blood and bone marrow, [Hävermark] 1475—ab
  treatment (emergency) of adrenocortical insufficiency, 1494
  treatment, eye drops after intraocular surgery, 1292
  treatment, herpes zoster occurring during, 1394
  treatment, local injection into skin lesions of sarcoidosis, [Sullivan & others] *308
  treatment, long-term results, Denmark, 352
  treatment of sarcoidosis, eosinophils in, 1394
  treatment or corticotropin in rheumatic fever indicated in all cases? 1493
  treatment plus chloramphenicol for typhoid, [Dana] 1574—ab
  treatment plus corticotropin, diabetes developed during, [Bookman] 1268—ab
  treatment plus corticotropin in arthritis, Chile, 957
  treatment plus corticotropin in asthma, Sweden, 264
  treatment plus corticotropin in eclampsia, [Howdon] 360—ab
  treatment plus corticotropin in intractable anogenital pruritus, [Turell] *806
  treatment plus corticotropin in pediatrics, National Congress discusses, Chile, 351
  treatment plus corticotropin in pemphigus vulgaris, [Aquilina] 478—ab
  treatment plus corticotropin in protracted rheumatic carditis in children, [Taran] 1069—ab
  treatment plus corticotropin in rheumatic carditis, [van Creveld] 1179—ab
  treatment plus corticotropin in Schoenlein-Henoch syndrome, [Philpott] 766—ab
  treatment plus corticotropin in snake venom poisoning, [Hoback & Green] *236; (correction: no such creature as a "copperhead moccasin") [Joseph] 1067—C
  treatment plus corticotropin in temporal arteritis, [Whitfield] 768—ab
  treatment plus corticotropin, (prolonged) of rheumatoid arthritis, [Bratlund] 981—ab; [Fischer] 981—ab
  treatment plus licorice in Addison's and Simmonds' disease, [Borst] 1383—ab
  treatment plus vitamins, and *acetylsalicylic* acid in periarteritis nodosa, [Dent] 1733—ab
  treatment, postoperative adrenal cortical insufficiency after, [Salassa & others] *1509
  treatment, rupture of abdominal wall through stria cutis distensa with, [Lawrence & others] *1526
  treatment, use and abuse in dermatology, [O'Leary & Erickson] *1695
CORWIN, EDWARD H. L. death, 537
COSMETICS
  A.M.A. Committee on, list of cosmetics accepted, 1141
COST-of-Living Index: See Consumers' Price Index
COTTONSEED
  sensitivity to, 775
COUGH: See also Hemoptysis; Sputum; Whooping Cough
  coughing during intratracheal anesthesia, meperidine to prevent, [Buschkens] 977—ab
COUGHING Up Blood: See Hemoptysis
COUMARIN: See Dishydroxycoumarin
COUNCIL: See Central Council; Medical Research Council; National Research Council; National Safety Council
  A.M.A.: See American Medical Association
  Health: See Health
COUNTY
  Health Dept.: See Health
  Society: See Societies, Medical; list of Societies, at end of letter S
COURSES: See Education, Medical
COURT Decision; Trial: See Medical Jurisprudence
COWPOX: See Vaccinia
COW'S MILK: See Milk
COWS
  brucellosis in: vaccination not a cure, 881
  Q fever in Great Britain, [Marmion] 1076—ab
COXSACKIE DISEASE
  virus cause of herpangina, epidemic pleurodynia, herpetic stomatitis, [Kravis] 362—ab; [Schlack] 367—ab
  virus, isolation from patients with epidemic pleurodynia, [Thordarson & others] *814
CRAMPTON, C. WARD, whole life records, 711—E
CRANIUM: See also Brain; Head
  injuries, [Lipscomb] *590
  roentgen study in children after tuberculous meningoencephalitis, [Callens] 97—ab
  stenosis, surgical treatment, [Desbuquois] 1574—ab
  suppuration, bacitracin in, [Teng] 1074—ab
  tumors, multiple osteomas of skull, 1499
CREAM: See Ice Cream
  Cosmetic: See Cosmetics
CRIME: See also Impostors
  in children, Belgium, 350
CRIMINALS: See Impostors
CRIPPLED: See also Handicapped; Poliomyelitis
  children's clinics, (Neb.) 463; (Mass.) 1438
  children, Committee for, at Illinois, 1539
  children's programs, A.M.A. resolution on, 854; (reply to *Life* magazine) 1142—E
  Crippled Child, change in format, 1542
CROSS (Frank B.) Prize: See Prizes
CROSS MATCHING: See Rh Factor
CROTON OIL
  resistance to, after treatment with irritants and/or hydrocortisone, [Selye] *1209
CRUELTY
  to children, 1044—E; (London) 1258
CRUISE: See Travel
CRUSH Injuries: See Trauma
CRYMOTHERAPY: Cryotherapy: See Cold, therapeutic use
CRYPTORCHISM: See Testes, undescended
CRYSTAL VIOLET: See Methylrosaniline
CRYSTALLINE LENS: See Lens, Crystalline
CULDOTOMY
  uterine denervation by, [Doyle] 480—ab
CULTS: See Chiropractors; Osteopaths
CULTURE: See Histoplasma; Tubercle Bacillus
CUMERTILIN: See Mercumatilin
CUMOPYRAN: See Cyclocumarol
CURARE: See also Tubocurarine
  use in electric convulsive therapy, [Gottlieb] 1370—ab
CURRICULUM: See Education, Medical
CUSHING'S SYNDROME
  postoperative adrenal cortical insufficiency, [Salassa & others] *1509
  rupture of abdominal wall through stria cutis distensa, [Lawrence & others] *1526
  treatment, remission after bilateral hemiadrenalectomy, [Kupperman] 361—ab
  treatment, subtotal adrenalectomy, [Walters] 357—ab
CUTTER Lecture: See Lectures
CYANIDE
  poisoning, corticotropin treatment, [Lurie] 1475—ab
CYANOCOBALAMIN (vitamin B_{12})
  effect on blood levulose, [Stuhlfauth] 1382—ab
  International Society discuss, 74
  treatment of arthrosis, Chile, 957
  treatment of pernicious anemia, 1586
  U.S.P. N.N.R. (Premo), 142; (Raymer Vitarine) 333; (Rorer) 921
CYANOSIS
  chronic, pulmonary valve stenosis in, [Selzer] 873—ab
CYCLOCUMAROL (Cumopyran)
  treatment of mesenteric venous thrombosis, [Koller] 99—ab
CYCLOSPASMOL
  treatment of peripheral vascular disease, [van Wijk] 1464—ab
CYLINDROMA
  tumors of parotid gland: 4 groups, [Byars & Ackerman] 354—C
CYSTINOSIS
  [Jackson] 1733—ab
CYSTOCELE: See Bladder
CYSTS: See under names of specific organs as Bronchus; Kidneys; Pancreas
  Sebaceous: See Sebaceous Cysts
CYTOCHROME C
  in resuscitation, [Battezzatti] 369—ab
CYTOLOGY: See also Cells
  Inter-Society Cytology Council, papers invited for, 1155
CYTOPLASM
  modifying test in diagnosis of toxoplasmosis, 1634—E

D

D CELL in cancer, [Sirtori] 285—ab
DBP: See Dibutyl Phthalate
DDT: See Chlorophenothane
DMDT: See Methoxychlor
DMP: See Dimethyl Phthalate
DNTP: See Parathion
DPP: See Parathion
DABNEY'S Grip: See Pleurodynia, Epidemic
DAIRY PRODUCTS: See Ice Cream: Milk
DAMON RUNYON Memorial Fund: See Foundations, Runyon
DANIELS, MARC, death, London, 548
DANILONE: See Phenindione
DANISH: See Scandinavian
DEAD BODIES: See Cadavers
DEAFNESS
  course for audiologists, Ill., 535
  etiology: dihydrostreptomycin, [Velasco] 1574—ab
  etiology: dihydrostreptomycin intrathecally in meningitis, (reply) [Konigsberger; Welch] 200
  in children, [Kinney] 1374—ab
  Nerve: See Otosclerosis
  Treatment: See Hearing Aids
DEAN, H. TRENDLEY, pioneer in fluoridation of water supplies retires, 68
DEATH: See also Cadavers; Undertakers
  Accidental: See Accidents, fatal
  Cause of: See also Suicide; under names of specific diseases
  cause of, acute adrenal cortical failure, [Taylor] 1266—ab
  cause of, barbiturate intoxication, 27—ab
  Maternal Deaths: See Maternity, mortality
  of Fetus: See Stillbirth
  of Infants: See Infants, mortality
  of Physicians: See list of Deaths at end of letter D
  Rate: See Vital Statistics
  sudden, cause of in elderly, 1677
  sudden, milk-aspiration pneumonia, [Moran] 1369—ab
  War Dead: See Korean War, Heroes
DECAMETHONIUM
  like compounds affecting skeletal muscle, 495—ab
  treatment of myasthenia gravis, sensitivity to, [Pelikan] 1173—ab
DECIDUOMA
  Malignant: See Choriocarcinoma
DECORTICATION
  of heart, [Skinner & Farr] *234
DEFECATION: See Feces
DEFECTIVES: See Mental Defectives
DEFENSE: See Civilian Defense; Medical Preparedness
  U. S. Department of: See Armed Forces
DEFERMENT, Military: See Medical Preparedness
DEFIBRILLATOR
  electric shock treatment with, in cardiac resuscitation, [Leeds] *1411
DEFICIENCY DISEASE: See also Nutrition, deficiency; Scurvy
  Council article, [Sebrell] *43
DEFINITION: See Terminology
DEFORMITIES: See Abnormalities; Crippled; Poliomyelitis
DEGENERATION: See Myocardium
  Fatty: See Fatty Degeneration
  Subacute Combined: See Spinal Cord
DEGENERATIVE Joint Disease (osteoarthritis) See Joints
DEGLUTITION: See Swallowing
DEHYDRATION
  treatment of delirium tremens, [Smith] *384
DELIRIUM TREMENS: See Alcoholism
DELIVERY: See Labor
DEMENTIA PARALYTICA
  deterioration in, [Kral] 1070—ab
DEMENTIA PRECOX
  schizophrenia and similar psychoses after brain trauma, [Elsässer] 1276—ab
  schizophrenia, convulsant effects of isoniazid, vs. iproniazid, [Reilly & others] *1317
  treatment, electrical termination of hypoglycemia coma, [Montagu] 284—ab
  treatment, lysergic acid ethylamide, [Solms] 1487—ab
DEMEROL: See Meperidine
DENTAL Caries: See Teeth
DENTIFRICES
  tooth paste, cheilitis caused by cinnamon (cassia) oil in, [Laubach & others] *404
DENTISTRY: See also Dentifrices; Jaws; Teeth
  A.M.A. resolution on "equilization pay" for dentists, 855
  old and new base periods for medical care price indexes, 1341—E; (Bureau article) [Dickinson] *1365

DENTURES: See Teeth
DEODORANT: See Odor
DEPARTMENT of Defense: See Armed Forces
DEPO-CER-O-CILLIN: See Penicillin O
DEPRESSIN: See Hexamethonium chloride
DEPRESSION: See Mental Depression
deQUERVAIN'S DISEASE: See Thyroiditis
DERMATITIS: See also Acrodermatitis; Eczema; Urticaria
Atopic: See Neurodermatitis
Berlock, treated with benoquin, [Lerner & Fitzpatrick] *578
Contact: See Dermatitis venenata
etiology: cinnamon oil in tooth paste, [Laubach & others] *404
etiology: triethylene melamine therapy, [Frumin & Rubenstone] *914
herpetiformis, trypsin injection for Duhring's disease, [Innerfield & others] *597
Industrial: See Industrial Dermatoses
of buttocks of child from toilet seat, (reply) [Greenhouse] 108
treatment, trypsin injection, [Innerfield & others] *597
venenata from native woods, [Weber] 1655—ab
venenata, from ointments, 569—ab
DERMATOFIBROSARCOMA
Protuberans: See Fibrosarcoma, primary, of skin
DERMATOLOGY: See also Skin; under names of specific skin diseases
American Dermatological Ass'n., prize essay contest in, 1249
industrial, history of, 923—E
use and abuse of cortisone and corticotropin in, [O'Leary & Erickson] *1695
DERMATOMYOSITIS
Primer on Rheumatic Diseases, *412
DERMATOPHYTOSIS: See also Tinea capitis
erythema annulare centrifugum as dermatophytid, [Jillson] 187—ab
ways to prevent fungus infections of feet, 292
DERMATOSIS: See Skin disease
Industrial: See Industrial Dermatoses
DESENSITIZATION: See Allergy
DESOGEN
new hand disinfectant, [Massone] 1484—ab
DESOXYCORTICOSTERONE
acetate in diagnosis of Addison's Disease, [Michon] 97—ab
DETERGENTS
care of hair: how often should it be shampooed? 1496
DETHMOR: See Warfarin
DEVERGIE'S Disease: See Pityriasis rubra pilaris
DEVICES: See Apparatus
DEVIL'S Grip: See Pleurodynia, Epidemic
DEWEES Public Health Scholarship: See Scholarships
DEXTRAN (Expandex)
as plasma expander, [Hartman & Behrmann] *1118
blood substitutes, (Committee report) 832
treatment of nephrotic edema, [Olive] 1376—ab
DEXTROSE: See Glucose
DIABETES, BRONZE: See Hemochromatosis
DIABETES INSIPIDUS
at age of 60, 1582
DIABETES MELLITUS
allergy antagonistic to, [Gutmann] 1572—ab
blood in, hypercholesteremia, effect of Monichol, [Sherber & Levites] *682
blood serum cholesterol, lipid phosphorus, and S_f 12-20 lipoproteins, [Katz] 357—ab
blood sugar, effect of amphetamine on, 294
blood sugar in, types of hyperglycemia, 376
camps for children, (W. Va.) 173; (Calif) 857
case finding, mass screening with 'St. Louis Dreypak," [Olmsted] 275—ab
coma, poisoning in child simulating from eating berries, [Hascoff & Wasser] *1134
coma, potassium treatment, [Crampton] 275—ab
complicated by cancer in aged, 106
complicating pregnancy, [Svanteson] 1485—ab
complications: muscular atrophy, [Hirson] 1671—ab
complications: nephropathy revealed by renal biopsy and renal function tests, [Brun] 1575—ab
complications: tuberculosis, frequency of, [Siedhoff] 1489—ab
Diagnosis: See also Diabetes Mellitus case finding
diagnosis, value of routine blood sugar tests to detect, [McCullagh & Zwickel] *1031
drenching night sweats in, 483
etiology: cortisone and corticotropin, [Bookman] 1268—ab
Florida Clinical Diabetes Association (1st meeting), 171
gangrene, trypsin injection for, [Innerfield & others] *597
heredity, Italy, 472
hyperventilation and pseudohypoglycemic reactions in, [Musser & others] *1113
in children, meeting on, Ill., 171
in Oxford, Mass., 4 year progress study, [Wilkerson & Krall] *1322
DIABETES MELLITUS—Continued
incidence, record of Australia, 624
insulin injection, lipodystrophy after, [Paley] 1562—ab
necrobiosis lipoidica diabeticorum, 985
oculomotor paralysis in diabetic, 656
prodromal stage, [Allen] 974—ab
remission (spontaneous), extreme hyperglycemia and severe ketosis with, [Cheng & others] *1531
Story of Wendy Hill (film review), 272
treatment; Allen starvation method, 295
treatment, cured by Laennec's cirrhosis, [Caroli] 653—ab
DIACETYLMORPHINE (heroin): See Morphine, diacetyl—
DIAGNOSIS: See also under names of specific diseases
mass screening for diabetes, [Olmsted] 275—ab
mistaken, of skin tumors and other lesions for sebaceous cyst, [Gross] *813
screening procedure to detect occult blood in feces, [Mendeloff] *798
treatment and, 1095—ab
DIALYSIS: See Hemodialysis; Kidneys, artificial
DIAPHRAGM
Hernia: See Hernia, diaphragmatic
pathology of, Belgium, 1255
subphrenic abscess, large doses of oxytetracycline cures, [Zaslow & Sachs] *1213
subphrenic infections, 1304—ab
DIAPHRAGMATIC SPASM, Epidemic: See Pleurodynia, Epidemic
DIARRHEA
effect of fly control on, [Lindsay] 1566—ab
in infants, related to incidence of intestinal protozoa, Mexico, 1360
Proteus mirabilis cause of, [Weiser] 1261—C
Salmonella Montevideo infection from powdered egg yolk; streptomycin treatment, [Southard & others] *1432
tourists, value of olive oil in the diet, (reply) [Martinez Diaz] 200
DIATHERMY
apparatus, power output: thigh test as standard method of determining heating efficiency, (Council report) *1235
contraindicated over or near bone plates, 1678
machines needed for Korea, statement from American-Korean Foundation, 1350
DIATHESIS
hemorrhagic, due to absence of Christmas factor, [van Creveld] 1482—ab
DI-ATOX Argentique: See Sulfones
DIBENZLYINE
treatment of hypertension, [Miller] 1375—ab
treatment vs. hydralazine in essential hypertension, [Moser & others] *1329
DIBUCAINE (Nupercaine)
hydrochloride in ventricular tachycardia, [Bisteni] 1171—ab
DIBUTYL PHTHALATE (DBP)
A. M. A. Committee report on names for pesticides, *820
DICHLORODIPHENYLTRICHLOROETHANE: See Chlorophenothane (DDT)
DICOPHANE: See Chlorophenothane
DICOUMARIN; DICUMAROL: See Bishydroxycoumarin
DIELDRIN (Octalox; Compound 497)
Committee report on names for insecticides, *819
DIENESTROL (Retalon)
incidence of side-effects, (Council report), [Kennedy & Nathanson] *1140
treatment of inoperable carcinomas, [Erlsbacher] 195—ab
DIET: See also Food; Nutrition
Britain's, under survey, London, 261
Calories in: See Calories
Deficient: See Nutrition, deficiency
Infant's: See Infants, feeding
intestinal flora changed by, 1676
Reducing: See Obesity, treatment
Salt-Free: See under Salt
therapeutic, Overland Brand Dietetic Pack White Meat Tuna, 45
therapeutic, to prevent kidney stones, 1082
tourists' enteritis: value of olive oil in diet, (reply) [Martinez Diaz] 200
unnecessary postoperative routine orders, [Harbison] *398
Vitamins in: See Vitamins
DIET-DELIGHT BRAND PRODUCTS
Pineapple Chunks and Tidbits, 45
DIETHYLCARBAMAZINE (Hetrazan)
treatment of filariasis, Mexico, 1360
DIETHYLSTILBESTROL
incidence of side-effects, (Council report) [Kennedy & Nathanson] *1135
DIGESTION: See Indigestion
DIGESTIVE SYSTEM: See also Indigestion; under various organs involved
duplications of alimentary tract in adults, [Nolan] 762—ab
passage of brown and white bread through, in man, [McCance] 560—ab
DIHYDROERGOTAMINE
treatment of irradiation intoxication, [Zuppinger] 100—ab
[illegible]
1574—ab
Heck] 1662—ab
treatment, intrathecal, advisable in bacterial meningitis? (reply) [Konigsberger; Welch] 200
U.S.P., N.N.R., (Upjohn) 921
DIIODOHYDROXYQUINOLINE (Diodoquin)
treatment of acrodermatitis enteropathica, [Dillaha & others] *509; (correction) 1643
DILANTIN: See Diphenylhydantoin Sodium
DIMERCAPROL (BAL)
ointment in chronic chrome dermatitis, [Cole] 187—ab
treatment of acute lead encephalopathy, [Deane] 1272—ab
treatment of hemorrhagic encephalopathy from Gay formula, [Prickman & Millikan] *1711
DIMETHYL PHTHALATE (DMP)
Committee report on names for insecticides, *820
DIMETHYL-TUBOCURARINE CHLORIDE (Mecostrin)
N.N.R., (description) 920; (Squibb) 920
DINING CAR: See Railroads
DIODOQUIN: See Diiodohydroxyquinoline
DIPARCOL
use in neurosurgery, [Woringer] 1280—ab
DIPENICILLIN G
treatment, oral, in scarlet fever, [Coriell] 1662—ab
DIPHENYLHYDANTOIN SODIUM (Phenytoin sodium; Dilantin sodium)
treatment cause of hirsutism? 295
treatment of epilepsy, [Putnam & Rothenberg] *1400
DIPHTHERIA
immunization: advisable to perform Schick test also Maloney test first, 565
immunization, booster dose in, [Mason] 1736—ab
immunization in outbreaks, London, 1454; [Lycett] 1479—ab; 1549
immunization procedures for children, precautions in, [Sauer] *1314
toxoid, alum precipitated-U.S.P., N.N.R., (Sharp & Dohme) 332
toxoid and tetanus toxoids (alum-precipitated) and pertussis vaccine: convulsion in infant after injecting, 1289
toxoid and tetanus toxoids, alum precipitated-U.S.P., N.N.R., (Lilly) 332
toxoid and tetanus toxoids and pertussis vaccine alum precipitated, aquagen, N.N.R., (U. S. Standard Products) 921
toxoid and tetanus toxoids with pertussis vaccine, combined, N.N.R., (U. S. Standard Products) 921
toxoid, aquagen, (alum precipitated), N.N.R., (U. S. Standard Products) 921
treatment, penicillin-streptomycin, [Schneider] 976—ab
DIRECTORY
of allergists: WHO IS WHO IN ALLERGY, 174
of Community Health Planning Councils, 251
of Mental Health Resources, Illinois, 1720
of summer camps for children, R. I., 464
DIRT: See Dust
Eating Dirt (Pica): See Appetite
Removal of: See Detergents
DISABILITY: See also Accidents; Blindness; Crippled; Handicapped
causes of, at Cuyahoga County Nursing Home, [Goodman] *1336
Chronically Ill: See Disease
Industrial: See Industrial Accidents; Industrial Health, workers absenteeism
Insurance: See Insurance
Rehabilitation after: See Rehabilitation
DISCOVERIES
medical, 137—ab
DISEASE: See also Death; Health; Pathology; under names of specific diseases
Absenteeism from work due to illness: See Industrial Health, workers absenteeism
acutely ill, analysis of 1,000 residence visits to, [Couter & others] *1704
Atopic: See Allergy
Carriers: See Typhoid
chronic, cancer as a chronic disease, 1144—E
chronic, causes of disability in patients with at Cuyahoga County Nursing Home, [Goodman] *1336
chronic, (Council article) [Sebrell] *43
chronic, estimated prevalence, in U. S. (1937) *324
chronic: varicose veins, [Biegeleisen] 1563—ab
chronic, Welfare Council Activities in Chronic Illness Planning, 1440
chronically ill, Philadelphia plan for home care of, [Udell] *990
Communicable: See Communicable Diseases
Contagious: See Infectious Diseases
Convalescence from: See Convalescence
Deficiency: See Deficiency Disease
Diagnosis of: See Diagnosis
Epidemics: See Epidemics
"functional" disorders, [Watts & Wilbur] *1192
geography and, [Karsner] 355—C
greatest enemy of American soldier in Korea, 1448
Hazard: See Industrial Diseases

DISEASE—Continued
  Industrial: See Industrial Diseases
  Infectious: See Infectious Diseases
  Mental: See Mental Disorders
  Nomenclature: See Terminology
  of Old Age: See Old Age
  Patients: See Patients
  Physical-Mental Relationship: See Psychosomatic Medicine
  Prevention: See Preventive Medicine
  severe illness in childhood, [May] 1270—ab
  Sickness Insurance: See Insurance, sickness
  Spread of: See Epidemics
  Standard Nomenclature of Diseases: See Terminology
  survey of prolonged non-occupational illness by Research Council for Economic Security, (Council article) *1457
  Treatment of: See Hospitals; Therapeutics
  Tropical: See Tropical Disease
  Volunteers: See Research, volunteers to aid
DISHES: See Cooking and Eating Utensils
DISINFECTION: See also Antiseptics; Sterilization, Bacterial
  of blood contaminated lancets, (reply) [van Rooyen] 882
  of "perishable materials" against tapeworm ova, 1396
  study of 3 new hand disinfectants, [Massone] 1484—ab
DISLOCATION: See Elbow; Hip; Pelvis
DISTILLED WATER: See Water
DISTINGUISHED Service Medal: See Prizes
DISULFIRAM (Antabuse; Tetraethylthiuramdisulfide)
  N.N.R., (description) (correction) 47
  toxic symptoms in antabuse-alcohol reaction, [Markham & Hoff] *1597
DIURETICS
  chlormerodrin, N.N.R., (description) 331; (Lakeside) 331
  mercurial, for oral use: chlormerodrin, [Leff] 1563—ab
  method for therapeutic evaluation of those given orally, [Greiner & Gold] *1130
DIVERTICULA: See Colon; Pharynx; Stomach
DIZZINESS: See Vertigo
DOCTORS: See Physicians
  Draft Law: See Medical Preparedness
DOGS: See also Rabies
  infected with Trypanosoma cruzi, humoral immunity of, Brazil, 1358
DONATIONS: See Fellowships; Foundations; Library; Prizes; Research grants; Scholarships
DONEGAN, H. W. B. (Right Rev.), invocation by, New York Meeting, 719
DONORS: See Blood Transfusion
DORMISON
  use of hypnotics in aging and senile patients, [May & Ebaugh] *801
DRAFT: See Medical Preparedness
DRAINAGE: See also Duodenum
  postural, with vibratory and clapping percussion to prevent postoperative collapse, [Palmer] 192—ab
  segmental postural, in pulmonary disease, [Kane] 1269—ab
  t-tube, simple receptacle (Venopak unit and bottle) for, [Watson] *814
DRESS: See Clothing
DRESSINGS: See also Medical Supplies
  pressure bandage (inflated football bladder) for lymphostatic verrucosis of amputation stump, [Loewenthal] 475—C
  unnecessary routine postoperative orders, [Harbison] *397
DRINKING: See Alcoholism; Water
DRIVERS; DRIVING: See Automobiles
DROMORAN: See Racemorphan Hydrobromide
DROPSY: See Ascites; Edema
DROSOPHILA
  poliomyelitis possibly carried by fruit flies, [Leeming] 77—C; [Garb] 757—C
DRUG TOPICS: See Journals
DRUGGISTS: See Pharmacists
DRUGS: See also Medical Supplies; Pharmaceuticals; and under names of specific drugs; Medicolegal Abstracts at end of letter M
  Addiction; Addicts: See Cannabis Sativa; Narcotics
  affecting skeletal muscle, 495—ab
  allergy to, causes hypoplastic anemias and related syndromes, (Council report) [Osgood] *816; 823—E
  allergy to, crossed allergies, Italy, 181
  Anesthetics: See Anesthesia
  control by Belgian Ass'n of Pharmacists, 1255
  dangerous, traffic in, London, 72
  duplication and imitation, N. Y. Pharmaceutical Ass'n. sponsors contest to eliminate, 860
  effects on intestinal flora, 1676
  effects on serum amylase, [Pfeffer] 1269—ab
  eruptions, 307—ab
  Great Britain's drug bill; how to reduce; use of National Formulary, 1650
  Narcotic: See Narcotics
  new, development of, qualifications for approval, [Sevringhaus] *1523
  new generic and brand names recognized by Council, 709
  Prescriptions: See Prescriptions
  Self-Medication: See Self-Medication
  Therapeutic Use: See Chemotherapy; under names of specific diseases
  U. S. Food and Drug Administration: See Food
DRUGS—Continued
  U. S. P.: See under names of specific drugs
  Vegetable: See Herbs
DRUNKENNESS: See Alcoholism; Medicolegal Abstracts at end of letter M
DUCTLESS GLANDS: See Endocrinology
DUCTUS ARTERIOSUS
  bilateral, [Kelsey] 760—ab
  patent, left ventricular overload after closure of, [Villamil] 1282—ab
DUDOLO
  new hand disinfectant, [Massone] 1484—ab
DUES: See American Medical Association membership
DUHRING'S Disease: See Dermatitis herpetiformis
DUKE UNIVERSITY
  Medical Town Hall meetings, 537; 1154
  School of Medicine, graduate course at, 617
DUMPING SYNDROME
  following gastrectomy, 293
DUNLOP, D. M., survey of prescribing, London, 754
DUODENUM
  drainage, examination, to study pancreas function, [Dreiling] 1472—ab
  secretin treatment of gastrointestinal disease, [Labò] 769
  Surgery: See Peptic Ulcer surgical treatment
  tumors, polyps, 1499
  Ulcer: See Peptic Ulcer
DUST
  Inhalation of: See Pneumonoconiosis
  sensitivity to, in sinusitis, 1676
DYES: See also Color; Congo Red; Methylene Blue; Methylrosaniline; Stains and Staining; Sudan III
  cancerogenic effect of food coloring, [Wingler] 1489—ab
  gallbladder, effect of on blood chemistry, (reply), [Lim] 296
  test in diagnosis of toxoplasmosis, 1634—E
  triple, and calcium gluconate treatment of hydrofluoric acid burns, 1493
DYING: See Death
DYSENTERY: See Diarrhea
  Amebic: See Colitis, amebic
DYSPEPSIA: See Indigestion
DYSPHAGIA: See Swallowing
DYSPNEA: See also Asthma
  phenylbutazone and water retention, [Johnston] 75—C
  "reverse" postprandial, dumping syndrome after gastrectomy, 293
DYSTROPHY: See also Lipodystrophy
  Muscular: See also Myasthenia Gravis
  Muscular Dystrophy Associations of America, Inc., grants, 1249
  muscular, progressive; treatment, 655
  of extremities, pathogenesis of Sudeck's syndrome, [Hackethal] 1476—ab

DEATHS

A

Aaronson, Michael S., 66
Aborn, William Henry, 1646
AbPlanalp, Ira Sankey, 1353
Abrons, Harry, 1252
Achorn, Ralph Chase, 1061
Adams, Bon O., 66
Adams, Glenn, 1547
Adams, Harold Wilson, 66
Adcock, John Delbert, 750
Addison, Robert Perry, 1061
Ahrens, Adolph Henry, 750
Albert, Simon, 1158
Albrecht, Herman Fred, 621
Alexander, Walter Gilbert, 66
Allen, Edgar Dempsey, 750
Allen, Francis Olcott, 750
Allen, Frank Duane, 542
Almour, Ralph, 468
Ambrose, William Harris, 66
Ames, John Lincoln, 468
Amoroso, Peter Francis, 468
Anderson, Joseph D., 542
Anderson, Leonard R., 468
Anderson, Marion Ellsworth, 1646
Andrews, Henry James, 543
Andrews, Judson M., 543
Aran, Roberto Pedro, 66
Argus, Francis, 66
Armistead, Ernest King, 1353
Atwell, David Roger, 66
Avery, Lewis Gorton, 468
Ayres, Floyd Freeman, 66
Ayres, Philip S., 66

B

Bachmeyer, Arthur Charles, 952
Baird, Joseph Shannon, 1061
Baird, Julia March, 66
Baker, Albert Sherburne, 750
Balme, Harold, 1156
Bandler, Morton Moe, 543
Barbee, George S., 750
Barding, Lewis Daniel, 953
Barker, Vincent Leland, 750
Barksdale, John Woodson, 952
Barlow, Brian Ethelbert, 1158
Barndollar, William Piper, 1158
Barnebee, James Hosea, 750
Barney, Louie Frank, 1252
Barr, Robert Haynes, 750
Barragy, Joseph Carroll, 66
Barringer, Benjamin Stockwell, 346
Barron, David, 543
Barry, Jesse R., 863
Bartee, Luke Harvey, 621
Bartlett, Alexander George, 1252
Bartolucci, Raymond John, 1646
Bartron, Harry Jacobs, 468
Bass, Harris Hartwell, 621
Bass, Rose Dina, 750
Bates, Grace Margaret, 468
Batten, Grover A., 66
Bauder, George Washington, 1158
Baumgartner, Albert J., 1252
Bausman, Albert J., 1158
Bayles, Lewis Eugene, 1252
Bazell, David Louis, 750
Beachler, John Frederick Sr., 66
Beasley, Charles Wesley, 1158
Beauchamp, Joseph Octave, 1353
Beckmann, Paul, 66
Beers, Charles William, 750
Bell, Edward, 1445
Belzer, Laurence Melvin, 750
Bennett, Andrew William, 1158
Bennett, Forrest McLean, 543
Bennett, James, 750
Bennett, Joseph Hammond, 863
Benson, Raymond LaVerne, 346
Bentley, William Edmond, 1353
Berger, David George, 66
Berman, Edward, 863
Bernstein, Abraham, 863
Bernstein, Solon S., 1727
Berresheim, Frieda K. Manfred, 1252
Berry, Gordon, 177
Bertolet, Walter Melot, 66
Bickelhaupt, Bertram Samuel, 863
Biggers, George Lee, 66
Biggs, John Moore, 1353
Biggs, Robert Alan, 66
Bill, Jose Penteado, 1547
Binford, Nellie, 863
Birch, Charles E., 1158
Bisher, Peter Manel, 66
Bland, Leonard Frederick, 1727
Block, Walter Ernest, 177
Bloom, Harold Abel, 1646
Blount, Anna Ellsworth, 177
Blue, James Howard, 750
Boone, Benjamin Edwards Jr., 863
Bowen, Berry, 1252
Bowen, Frederick Stuber, 1646
Bowker, Frank Clarence, 66
Bowman, J. Craig, 1252
Boyd, Leon Morelle, 1646
Boyd, William Ballantine Jr., 469
Brace, Robert Walter, 1547
Bradford, Duke Constantine, 1727
Bradley, Isabel Agnes, 953
Brannon, Earl Holt, 543
Braunstein, William Peter, 1646
Bray, Eulys Willson, 66
Bremser, William Edward, 346
Breon, Guy L., 66
Briggs, Carl F., 1646
Briggs, Leroy Hewitt, 1727
Briggs, Robert Truman, 1646
Brinker, Marion Henry, 1353
Brooks, John Dosher, 543
Brown, Abraham Joseph, 346
Brown, Arthur Aloysius, 1158
Brown, Cecil Hooper, 177
Brown, Joseph C., 1646
Brown, Robert A., 1061
Brown, William Marmaduke, 1061
Browning, Zack Clark, 1727
Bruder, Andrew Joseph, 543
Brumfield, Jesse E., 953
Brunson, Sophia Boatwright, 255
Brust, Herbert Oscar, 1061
Bryant, Charles Page, 66
Bryant, Frank Adolph, 1252
Buchanan, Albert S., 1727
Buck, Thomas D'Arcy, 953
Buehl, Robert Frederick, 1353
Buff, John Thomas, 953
Bull, Charles Henry, 1158
Bull, Homer Thomas Reginald, 1353
Bullen Victor Emmanuel, 1646
Bunker, Henry Alden, 953
Bunnell, Frederick Norman, 953
Burge, H. Gideon, 1061
Burke, John Edward, 468
Burke, Michael Francis, 953
Burke, Walter Thomas, 66
Burst, Emil Andrew, 1646
Butler, John Dennison, 953
Butterfield, Edwin Jay, 1646

C

Calcote, Royal Jackson, 1646
Caldwell, Birnie R., 750
Caldwell, John Dean, 346
Calicchio, David Julius, 66
Campbell, William Muse, 1354
Carberry, Blaine Edward, 1158
Carleton, Lawrence Heard, 67
Carman, Richard Perry, 621
Carpenter, Herbert B., 1354
Carpenter, Samuel Aloysius, 67
Carpenter, Thomas Delmont, 256
Carper, James Claibourne, 751
Carson, Rollett Andrew, 1158
Cartland, John Everett, 67
Caruso, Gerard, 543
Case, James Dodds, 1354
Caskey, Walter Harold, 1252

Deaths—Continued
Cason, Charles W., 543
Cass, Frank Ozro, 543
Caster, John Leslie, 751
Castiglioni, Arturo, 950
Castro, Herman Rawson, 543
Cauble, William Commodore, 543
Chace, Fenner Albert, 1252
Chalmers, James Scott, 543
Chandeysson, Pierre Ismail, 1252
Chandler, Melvin Elwell, 1158
Chang, Wah Kai, 1158
Chapman, Lee Jackson, 67
Charbonneau, Noe Napoleon, 1354
Charlton, H. Richard, 1252
Chasatzky, Isaac Samuel, 1646
Chase, Henry Melville, 67
Chiasson, Marcellin Jean, 543
Childress, Harmon Jay, 542
Chizik, John Joseph, 177
Christianson, Harry Walter, 1353
Cieri, Joseph Domenick, 255
Clark, Ernest Walton Jr., 1646
Clark, George E., 67
Clarke, Clayton Reynolds, 1727
Clear, James Thomas, 1354
Cleary, Robert Madden, 542
Clecak, *Nicholas Jeffries*, 1158
Clothier, Elton Forrest, 1354
Clowes, Leo Clifford, 1252
Cobbey, Theodore Sabin Jr., 67
Cochran, John Howard, 1159
Cockrell, Eugene Peyton, 1159
Coffin, Guy Rupert, 543
Cohen, Franklin Harry, 1647
Cohen, Herman N., 543
Colby, Buford Monroe, 1354
Collier, Edward James, 1354
Collins, Charles Farnham, 67
Collins, James Joseph, 751
Collins, Loren Leslie, 1253
Collins, William Wells, 1354
Colver, Benton Noble, 468
Connell, Wade Hampton Lee, 67
Connolly, Richard Newman, 543
Conrad, Clyde Douglas, 67
Coogle, Charles Perry, 177
Cooper, Denton John, 751
Cooper, Fay Maxey, 1647
Cootey, Sherwin Aldrich, 67
Corbell, Robert Lawrence, 953
Cordes, Henry Boyleston, 863
Corkern, Ronald Eston, 67
Corkrean, John Ervin, 67
Corpening, Flave Hart, 621
Corrigan, John Edwin, 751
Coscia, Enrico Giordano Carl, 953
Costello, Bernard Edward, 1727
Cothern, William Ross, 1354
Cotton, Stanley M., 953
Countryman, John Edgar, 255
Cowan, Arthur, 1159
Cowart, Newit Walter, 1647
Cox, Frank Edwin, 1253
Cox, Harold Bailey, 543
Cox, Harold Crisp, 621
Cox, Joseph Burnside, 953
Craft, Harry Leolyn, 1253
Crandall, Henry Noble, 1159
Crane, Bernard, 469
Crawford, Robert Hope, 1646
Crecelius, Harry Alfred, 1647
Crees, Matilda Adella Walter, 255
Cremer, Peter Hubert, 1354
Crenshaw, John Lewis, 1353
Crockett, Horace Eugene, 863
Crombie, Francis Joseph, 543
Crooks, Toney Taylor, 863
Crosbie, George Torance, 1647
Crosland, Edward Samuel, 1647
Crosson, James, 346
Crowson, Egbert, 1354
Cruickshank-Bailey, Jean, 1159
Cruikshank, Omar Trees, 621
Culbert, Milo Herman, 953
Cullipher, Jeremiah Edward, 543
Culver, John Thayer, 346
Cummins, William Taylor, 1159
Cunningham, Harvey Lee, 1061
Currie, William E., 1354
Curtin, Thomas Hayes, 1253
Cutting, Herwald, 346

D

Dagnault, J. Alphonse, 67
Daily, John Eugene, 863
Daly, Jeremiah James, 1061
D'Amato, Charles Richard, 1445
Dana, Lawrence Wellington, 1647
Daniells, Ralph Peabody, 863
Dansky, Nathan, 543
Davenport, Frank Noble, 177
Davidson, Joseph Samuel, 1159
Davies, George William, 1159
Davis, George Henry, 543
Davis, James Haywood, 468
Davis, Llewellyn Farnum, 543
Davis, Thomas Carroll, 67
Davis, William, 1253
Davis, William Carle, 67
Deland, Charles Airmet, 751
DeLuca, Horatio Roger, 346
DeMont, Charlotte, 1445
Dengler, Raymond Archibald, 1445
Denny, Chester Hampton, 751
DeNormandie, Robert L., 751
Denyes, Gerald Foster, 1647
DeTomasi, Romeo Q., 346
DeWitt, Charles Cornelius, 1647
DeWolf, Charles Livingstone, 543
Diamond, Joseph Solomon, 864
Dichek, Maurice, 1727
Didier Frederick William, 864
Dill, Wallace Wright, 1445
Diss, Charles Joseph, 543
Donnelly, Francis John, 543
Dorning, John, 543
Doten, Arthur Chapman, 543
Doupe, Rupert Gilpin, 751
Dowdy, Robert Willborne, 67
Dowlen, Willard Madell, 1159
Dowling, Thomas J., 1253
Drayton, William Jr., 346
DuBois, Francis Elbert, 469
DuBois, William John, 1159
Duckwall, Francis A., 1647
Dudley, Alberta Pasch Webb, 1647
Dugger, John Wesley, 1445
Duncan, Edgar Cecil, 67
Duncan, Henry, 1647
Dunn, Joseph Francis, 1445
Dunn, Joseph J., 953
Durant, Oswald Davidson, 1253
Dyer, Clyde Percy, 67
Dzienis, John Paul, 67

E

Eagan, Edward Francis, 1647
Eames, Earl, 953
Earnshaw, Henry Culp, 953
Easom, Jack Johnson, 1445
Eaton, Arthur Theodorus, 543
Eaves, Benjamin F., 864
Eber, Albert H., 1159
Eberhart, Ira A., 346
Echtman, Joseph, 1646
Eckert, George Arthur, 1158
Edlich, Theodore Julius, 751
Edlow, *Ernest S.*, 1445
Edson, Elmer Rockwood, 1647
Edwards, James Gettys, 1354
Edwards, Joseph Madison, 67
Ehlert, William, 1354
Eiland, Robert John, 67
Eisenberg, Joseph Abram, 953
Eisenhardt, William G., 1061
Ellet, William Clinton, 1159
Ellington, Walter Edward, 469
Ellis, Aller G., 346
Ellis, Hubert, 1354
Ellsworth, Elmer Harvey, 1445
Ellwood, Walter Willfel, 177
Ely, George Taylor, 346
Emery, E. Van Norman, 255
Engstrom, Fred Alonzo, 864
Ennett, Nathaniel Thomas, 1646
Epperson, Paul Stenerson, 1445
Ertzman, Richard Leonard, 1647
Eshleman, Lindley Heath, 621
Estlick, Richard Edison, 953
Evans, Alfred Harris, 1253
Evans, Ellis Austin, 1354
Evans, John Norris, 542

F

Fagan, Albert L., 469
Falk, Emanuel L., 469
Farmer, Grosvenor S., 346
Farnum, Earl P., 1159
Farquhar, David Clifford, 1647
Farris, Hansford Lee, 543
Feigin, Samuel, 255
Feman, Jacob George, 1647
Ferguson, Omer Earl, 953
Ferguson, Ward Smith, 1159
Fernandes, Philip Mathias, 1727
Ferringer, John Edward, 1728
Fetterman, Joseph L., 542
Fidler, Albert John Eugene, 1447
Fiedling, Michael William, 177
Fields, Harold Ross, 953
Fine, Henry Masten, 543
Fink, Harry Myer, 1728
Finley, William Albert, 1354
Fischer, Luther C., 863
Fitch, Emery Moore, 346
Fitz, Reginald, 863
Fitzgerald, John Bertram, 751
Flippo, La Faun Newton, 864
Flitcroft, William, 1547
Focht, William Weinhold, 864
Foley, Fred Charles, 864
Folk, John L., 1445
Foltz, Earl DeWitt, 1354
Ford, Charles, 1728
Ford, Charley Edward, 347
Forkosh, Sydney Richard, 67
Fort, Mannie Almanza, 1547
Foster, Harold Alfred, 544
Fountain, Noah W., 178
Fowler, William Robert, 1445
Fox, Noah, 347
Francis, Nathan, 178
Frandsen, Charles, 1728
Frank, Irving Leslie, 1445
Franklin, Abraham Lincoln, 1445
Frasch, William Frederick, 544
Freedman, Theodore, 67
Freeman, Thelma, 864
Friedman, Emanuel David, 1353
Friedmann, Friedrich Franz, 1250
Frisch, Frank Peter, 1445
Fuerste, Frederick, 1159
Fulep, Joseph, 1728
Futch, Thomas Allen Jr., 864

G

Gaberman, David B., 1445
Gallagher, Joseph Francis, 1061
Galloway, Charles A., 1354
Gamon, Robert Speer, 953
Ganamey, Anton Accad, 255
Gantz, Sue Blanche Humeston, 544
Gardner, Alfred E., 67
Gardner, Otho Winton, 67
Gaskins, Don Carlos, 751
Gaumer, Herman Elmer, 864
Gayman, Byron Roosevelt, 255
Gehris, Oscar Thompson, 1253
Gellman, Isaac I., 1445
George, Raymond Horace, 1159
Gerish, Albert Ernest, 544
Getson, Philip, 544
Gibbon, Robert Lardner, 864
Gibson, Frank Chester, 542
Gilbert, Newell Clark, 1646
Gildersleeve, John Andrew, 347
Giles, George Clifton, 544
Ginsburg, Samuel Simon, 953
Girard, Frank Robert, 347
Glaze, Kenneth Franklin, 1159
Gleason, Charles Dennis Raymond, 347
Gleason, Roy Lee, 178
Glick, Meyer Joseph, 1728
Glover, Lewis Pellman, 1354
Goble, Charles Archie, 544
Goettling, Charles Alfred, 347
Gold, Irving Bachrach, 66
Golden, Isaac John King, 953
Goldfarb, Walter, 1253
Goldwasser, Herbert Valentine, 953
Good, Barton Lester, 953
Goodman, Walter George, 544
Goodrich, Benjamin Elmer, 1547
Goodwin, Newland Augustus, 347
Goodwin, Robert Franklin, 1356
Gordon, Joshua Mandel, 178
Gorman, John Joseph, 1354
Gorr, Charles William, 1446
Graham, Edwin E., 1446
Graham, Fred Wilson, 1728
Grant, Lee Otis J., 1354
Graves, *Nathaniel A., 347*
Gray, Irving, 621
Gray, Joseph Rea Taylor Jr., 1446
Green, Norman Smith, 1446
Gregory, Alice, 953
Grice, Harold Israel, 953
Griffin, Alonzo P., 1159
Griffin, William Flournoy, 544
Griot, George Augustus, 1061
Grodinsky, Manuel, 544
Grosfeld, William Jacob, 952
Grossman, Frederick Maximilian, 953
Gruenspecht, Adolfe, 544
Gruhler, Jean Albert, 1253
Guenther, Edward George, 1547
Guice, Charles Lee, 1728
Guiss, William Henry, 178
Gurjian, *Leon Kevork, 954*

H

Haberer, Herman Joseph, 1253
Haley, Michael Robert, 1253
Hall, Harry Bolander, 1446
Hall, Hugh Joseph, 1446
Hall, Walter George, 1061
Halstead, France W., 469
Hammel, Harry H., 1061
Hanna, George Orvil, 1446
Hannah, Ward, 864
Hansen, Elmer Harry, 1547
Hansen, Fitch Phelps, 178
Hansen, Otto Anthon, 1253
Hanson, Ralph, 751
Hardesty, John Frank, 1445
Hardin, Claud Everett, 544
Hardt, Harry Godfrey, 1354
Harrington, George Leonard, 864
Harris, Isaac Burt, 1445
Harris, William, 954
Harrison, Edwin Marriott, 1446
Hart, Benjamin Ide, 751
Hart, Edward Elmer, 178
Hart, James Luke, 1446
Hartman, John Van Horn, 178
Hartman, Matthew A., 544
Harvey, James Alexander, 1353
Harwood, Robert Ellyson, 954
Haskins, John Bunyan, 952
Hastings, John Charles, 1253
Hathaway, Robert Meredith, 544
Hawkins, George Giles, 1253
Hayne, James Adams, 952
Haynes, Aaron Lorènzo, 255
Heacock, James Howard, 954
Heacox, Frank L., 954
Headland, Courtenay Inglis, 1061
Healy, Thomas Francis, 347
Heard, Mary Kathrina, 1253
Hearn, Arthur C., 1253
Hearn, Marion, 1446
Heffelfinger, Miles Akin, 544
Heinrichs, Julius Clay, 751
Heise, William Frederick Carl, 1446
Heller, Jacob, 255
Helmes, Lloyd Oscar, 954
Henderson, Elmer Lee, 1546
Henderson, Ira Milton, 347
Hercik, William Louis, 751
Hermance, William Oakley, 1446
Herndon, Richard Fleetwood, 347
Herrick, Fred Samuel, 1446
Herring, Arthur F. C., 1354
Herrington, Lewis Marion, 1446
Herrmann, Ross Edward, 1728
Hervey, James R., 1446
Higa, James Tosuke, 864
Higbee, Frank O., 1446
Hight, William Boyd, 1354
Hill, David Hendrix, 347
Hill, Frank Albert, 954
Hiller, Frederick, 1445
Hills, Henry Monroe, 954
Hilt, John Leonard, 1253
Hodges, Dolon Ernest, 1354
Hoey, Charles Francis, 954
Hoffman, Curtis Raymond, 1253
Hoffman, Fred St. John, 469
Hoffman, Philip Foster, 469
Hogan, George Archibald, 621
Holland, Gilmer Gustave, 347
Hollingsworth, Robert E., 954
Hollister, Bruce Allan, 347
Holmes, Rudolph Wieser, 255
Holmes, Will Wanee, 863
Holmes, William Elsworth, 954
Holst, Johan, 1065
Honaker, George Thomas, 347
Hooper, Vernon Jay, 621
Horine, Elmer S., 347
Hornick, Leo William, 1354
Houston, William M., 1354
Howard, Elmer Ellsworth, 1728
Howitt, Henry Orton, 1446
Howles, James Kirby, 621
Hoyt, Doctor C., 347
Huff, Asher DeWitt, 1446
Hughes, Herbert Andrew, 1253
Hughes, Lawrence Jesse, 1253
Hughes, Michael Edward, 1547
Hull, Richard Barnett, 955
Humphreys, George Hoppin, 864
Huntington, William Henry, 347
Hurley, Frank James, 1728
Hussey, Cyril Christopher, 1446
Hussey, Raymond, 177
Hutchinson, William G., 954

I

Ingalls, Albert Thompson, 1446
Irvin, Isham Willard, 864
Ison, Gideon Douglas, 1253
Ivanoff, Stephen, 864
Ives, Augustus W., 1253
Ives, Washington Mackey, 864
Irimey, Muriel, 178

J

Jacobs, Harry A., 178
Jacobson, Harry Pincus, 1252
Jacobson, Jason Joseph, 347
Janney, Francis White, 621
Jedel, Meyer, 347
Jennings, John Buford, 1253
Jensen, Jens Peter, 1061
Jessup, Horace Sihler, 1547
Johnson, Albert H., 347
Johnson, David Morrison, 1061
Johnson, Jens Andreas William, 1061
Jones, Arthur John, 1061
Jones, Charles James, 864
Jones, Daniel Dailey, 1547
Jones, Emlyn, 1061
Jones, Ira Fulton, 1547
Jones, Leonidas Leroy, 1728
Jones, William McKinley, 751
Jope, Clifford Henry, 255
Jordan, Calvin Cleveland, 954
Jordan, John Franklin, 1253
Jurney, Muldrew Prichard, 347

K

Kahle, William D., 621
Kahn, Karl Heinrich, 469
Kastner, Alfred L., 954
Keene, Walter Bullock, 1548
Keese, John Mumford, 1728
Keever, Benjamin Winston Dudley, 544

Deaths—Continued
Keever, Claude M., 255
Keith, Archibald Magruder, 751
Kelly, Bernard V., 954
Kelly, Joseph Ignatius, 751
Kenner, Joseph J., 954
Kent, Leslie Swigart, 1354
Kermek, Ace, 1253
Kerr, James Edwin, 469
Kiehle, Frederick Andrews, 255
Kimbrell, Earl Dewey, 864
Kirkbride, Willis Joseph, 256
Kissane, John William, 544
Kistler, Milton S., 1253
Klein, Rose Herchman, 621
Kline, Philip, 1548
Kline, Walter Lee, 544
Klippel, Edward Theodore, 751
Klock, Guy Almeron, 1061
Knepp, James Warren, 1548
Kolb, Edwin Paul, 1547
Koop, Severin Herman, 1548
[illegible]
[illegible]
[illegible], 1548
[illegible]
[illegible] Robert, 1354
Krug, Bert Donald, 347
Kruidenier, Bastian, 178
Kuhn, Leo Cornelius, 1728

L

Lahey, Frank Howard, 1060
Lamb, Andrew Joseph, 178
Lamb, Harry Hayes, 1354
Lambert, Rudolph Harold, 256
Lampe, Albert Victor, 751
Lanier, John Edward, 256
Lapham, Anna Ross, 347
Last, Murray A., 1547
Latimer, Marvin Luther, 954
Launer, Louis, 256
Law, Charles Royce, 1548
Lawrence, Edgar L., 1355
Lawry, Carl C., 1446
Lawson, John Alexander, 1355
Leamy, LaBarre Jayne, 178
Lease, Nimrod James, 1355
Lebowitz, Joseph Joessel, 954
Lemaire, William Franklin, 178
Lemieu, Theodule Alfred, 1728
Lemke, Albert R., 751
Lennarson, Vernon Elwyn Clarence, 256
Le Pard, Sherman J., 1061
Lerner, Allan, 347
Leslie, Lawrence Webb, 751
Levy, Walter Edmond Jr., 1647
Lewis, Eugene Richards, 346
Lewis, William Frank, 544
Lieberthal, David, 1355
Lindley, Don Carlos, 1446
Lindsay, Samuel Sebastian, 621
Lipscomb, James Walton, 347
Litt, Sol, 544
Little, Abby Noyes, 1446
Lockwood, Charles Edwin, 1355
Loffer, Orla Wirt, 347
Loffler, Gilbert Dennis, 469
Lohmiller, Royal Kasson, 347
Long, Arthur D., 751
Longcope, Warfield Theobald, 621
Longstreet, Martha L., 544
Loughead, Raymond B., 1446
Love, George Melvin, 1253
Lowman, John Bodine, 952
Luce, Dean Sherwood, 468
Lukens, Philip Jefferson, 1253
Lurie, Sophie Arkadyevna, 621
Lutgen, Anson S., 1061
Lyon, B. B. Vincent, 952
Lyon, Claude C., 348
Lyon, Paul Tiffy, 751

M

McCarthy, Edward, 1548
McCarthy, Walter Rochefort, 954
McCarty, John Louis, 348
McClain, John Washington, 348
McClellan, William Thomas, 1355
McClelland, Silas Edward, 348
McComb, Fred Jackson, 864
McCord, Clinton Preston, 1158
McCormack, James L., 1254
McCoy, Clem Dennin, 1254
McCracken, Jesse Lazear, 1061
McCubbin, Hardy Louis, 622
McCulloch, Horace Dwight, 622
McCullough, John Henry, 1355
McDevitt, Coleman Joseph, 348
McDonnell, John Joseph, 1728
MacDonald, John Joseph, 1061
McGarity, Joseph Arthur, 622
McGrath, John Henry, 1446
McGrath, John Joseph, 1060
McGuire, John P., 864
McHenry, Junius Cone, 348
McKenna, Paul King, 954
Mackenzie, Alice Virginia Clopper, 348
McKinney, Ralph Frank, 954
McKinney, Walter L., 954
McKinnon, Daniel Angus, 1548
McKnight, Clarence J., 954
McLaren, Jennette Matilda, 751
McLaughlin, James Daniel, 954
McLean, Daniel Calvin, 622
McMullen, Charles Gould, 255
McNattin, Robert Franklin, 750
McSheehy, Morgan Thomas, 348
Magee, Charles Benjamin, 256
Mahlatjie, Nathaniel M. S., 1061
Mangan, Peter A., 178
Mann, Jesse Thomas, 178
Mann, William Leake, 1546
Manning, Ernest Tibbetts, 1548
Manning, Homer Clay, 178
Maraventano, Salvator George, 348
Margulis, Abraham Aaron, 256
Markell, William Ody, 256
Marr, Raymond,, 1355
Marsh, Hanson H., 544
Marshall, Calvin Clifford, 348
Marthens, Jesse Grant, 1647
Martin, Frank DeWees, 1254
Martin, George Clark, 1548
Martin, Henry Sleeper, 1548
Martin, John Letton, 1548
Martin, Pierce, 1061
Martin, Ross Christman, 1355
Martt, Sherman Guthrie, 1548
Mason, Morris Arthur, 348
Matthews, Ida Belle Phillips Hawk, 348
Maurer, Franklin, 1355
May, Edward Joseph, 348
Maytum, Charles Koran, 468
Meany, Thomas Edward, 622
Meister, Edward Frederick, 1728
Menown, Roland R., 1446
Mercer, Mifflin W. 1159
Merriman, Willis Edgar, 348
Mershon, Oliver Francis, 348
Merz, Adolph, 1728
Meyer, Fritz Max, 954
Middleton, Edward Duncan, 954
Miles, James Oliver, 1446
Miller, Allen Jay, 469
Miller, Arthur L., 1159
Miller, Bodo Emanuel, 1254
Miller, Charles Francis, 544
Miller, Elwood, 1159
Miller, George Elmer, 348
Miller, James Wesley, 1647
Miller, John Floyd, 1728
Miller, John Johnston Jr., 1728
Miller, Richard Jasper, 544
Miller, Riley H., 954
Miniggio, Antonio, 622
Mitchell, Carl Apperson, 622
Mitchell, Edwin Waterman, 864
Mitchell, Joseph Grover, 1061
[illegible] Sr., 1254
[illegible]
[illegible]
[illegible]
[illegible], 544
Montgomery, Alexander, 1446
Moore, Baxter Springs, 1355
Moore, Daniel Virgil, 544
Moore, Ernest Sisson, 348
Moore, Gertrude, 863
Moore, Harold H., 1647
Moore, Phoebia Gean, 1254
Moore, Roy Seeley, 1158
Moore, Thomas Joseph, 348
Moren, Edward, 348
Morgan, Browne, 1355
Morgan, Isaiah C., 1548
Morison, Garnett Pierce, 1728
Morison, Oscar Noel, 1254
Morris, Charles H., 348
Morrison, Charles Carr Jr., 1159
Morton, Charles Rufus, 1159
Motley, Elliot Rector, 348
Motley, Jewett Palmar, 1159
Mozingo, Arvine Earl, 1159
Mueller, James Alexius, 1548
Mueller, Vincent J., 348
Mullarky, Hugh, 1159
Muncie, Elizabeth Hamilton, 348
Murphy, Charles Edgar, 751
Murphy, Frank Patrick, 542
Murphy, John Patrick Jr., 544
Murphy, Miles Joseph, 348
Murphy, Wilbur J., 1728
Murrow, Joseph S., 1647

N

Nall, Frank Edgar, 954
Nelligan, Thomas Hayes, 544
Nelson, Elford John, 1647
Nelson, Harry Emanuel, 1254
Nelson, Richard Buzzard, 1548
Nesbit, William Wesley, 952
Newman, Abraham Jacob, 1159
Newman, Lester, 1159
Newman, Oscar Clarence, 544
Nichols, Robert Columbus, 1548
Nieweg, Julius William, 256
Nissler, Christian William, 1548
Nixon, Ethel Louise, 178
Norment, Richard Baxter Jr., 1548
Northridge, William Albert, 1159
Noyes, George Burton, 256
Noyes, William Bradbury, 1548
Nuzum, John Weston, 1254

O

O'Connor, Andrew Francis, 1548
O'Connor, Bernard Aloysius, 256
O'Connor, Charles Mallon, 1728
Odom, Marvin Milton, 256
Ogden, Lee, 1254
Ogg, Francis Willard, 955
O'Keeffe, James Vincent, 1647
Olch, Benedict, 1728
Oliver, Everard Lawrence, 1547
Olmsted, Austin Orin, 622
O'Neil, Alfred Eugene, 1254
O'Neill, John Henry, 178
Orton, Zenas Van Duzen, 1160
Overholser, Charles, 751
Owens, William Harris, 178

P

Palfrey, Francis Winslow, 1728
Park, William Edwin, 622
Parker, Joseph Garrison, 1548
Parker, Prentiss Edward, 545
Parks, William H., 1160
Parsegan, Jacob Hohaness, 1160
Parsons, Alfred Harrison, 864
Parsons, Alfred Morris, 348
Partlow, William Dempsey, 1727
Partridge, Raymond Blaine, 348
Pastoral, Aquilino Callanta, 545
Pate, Louis Hinkle, 256
Pattajo, Christus Alexander, 1728
Patterson, Denver Harry, 545
Patterson, Robert F., 348
Patton, Lewis Suddath, 1728
Paul, John Davis, 750
Paulk, George A., 178
Payne, John Edward Jr., 1647
Peacock, Lee Wallace, 1254
Pease, Edmund Morris, 256
Pedigo, William Sherman, 1548
Pentecost, Milton Irving, 1647
Perez, Joseph, 955
Perrin, Deckard Leroy, 1160
Perry, Eugene Beauharnois, 955
Perry, Middleton Lee, 1252
Peter, Alphonse Joseph, 178
Peterka, Edward, 1355
Peterson, James Rumbaugh, 1355
Petronella, Samuel James, 256
Pfaff, John Alfred, 751
Pfisterer, Frank William, 1728
Phillips, Clyde Lincoln, 1647
Picken, Mary Eleanor Stephenson, 864
Pipkin, Walter D., 545
Plath, John Henry, 1647
Ploughe, Monroe L., 348
Plowitz, Paul Egon, 864
Popovich, Theodore, 1729
Post, Cecil Omar, 1254
Powell, John Franklin, 1647
Pozdena, Otto Rudolf, 545
Pracht, Henry Walters, 1647
Prendergast, Francis Aloysius, 545
Prentiss, Marvin B., 1355
Prestridge, Barney Bertrand, 1160
Prichard, Joseph A., 348
Prichard, Marvin Compton, 1355
Prideaux, William Albert, 955
Priessman, Frank Albert, 1729
Purcell, James Bernard, 1355
Purdy, Charles Humphrey, 1729
Pusey, Brown, 1547

Q

Quarrier, Sidney Sayre, 545
Quinland, William Samuel, 1254
Quinn, Murray D., 348

R

Ramsey, Byron Lowe. 955
Randall, James Augustus, 750
Ranes, Annie R., 1729
Rassieur, Louis, 1547
Rau, Conrad Fred, 1729
Reid, David William, 545
Reid, John Joseph Jr., 955
Reim, Hugo, 1355
Reimel, Clara, 1729
Reneke, Edward Joseph, 1254
Reutter, Garfield Arthur, 864
Rhodes, William Seymour, 469
Richards, Arthur Charles Jr., 1356
Richardson, Walter Earl, 178
Richardson, Wyman, 468
Riffle, Raymond Ernest, 1548
Rigterink, George H., 1355
Rigterink, Herman A., 256
Ritzman, Allen Zachariah, 469
Robberson, Marvin Early, 1548
Robbins, Jesse Wright, 178
Roberts, David Daniel, 622
Roberts, George James, 256
Roberts, William Pusey, 751
Robilotti, Joseph Gerard, 545
Robinson, Andrew Smith, 1446
Robinson, Arthur Letchford, 545
Robinson, Finley A., 1254
Robinson, Simon Frank, 864
Robison, Claude Alvin, 622
Roby, Robert Sharman, 1548
Roche, Arthur Felix, 1355
Rodgers, Lewis Aretus, 1355
Roll, Lewis Robert, 1727
Romano, Joseph James, 1254
Rooney, John Francis, 1548
Roop, Henry Tait, 256
Rosen, Marks Julius, 751
Rosenberg, David Samuel, 864
Rosenberg, Nicholas L., 1160
Rosenfeld, Ernst, 1160
Rosensohn, Meyer, 1254
Ross, Elizabeth, 545
Rouse, Francis Ernest, 1446
Rude, Emerson Waterbury, 1160
Rudolph, Myron Parkhill, 1546
Runyan, Chandler Preston, 545
Rutledge, Harold Hunt, 622
Ryburn, John Patrick, 1446
Rynearson, William John, 545

S

Salinger, Simon F., 1355
Samorini, Arnaldo Aloysio, 178
Sanders, John Gillis, 1254
Sandperl, Harry, 1160
Sanford, Herbert Marvin, 178
Sansoucy, Jerome Aime, 1446
Sasaki, George Ryoichi, 256
Satterfield, Benjamin W., 256
Sawyer, Alpha Reuben, 1355
Scantleton, John Martin, 1729
Schaefer, John F., 1355
Schamberg, Morris I., 1355
Scharlock, Theodore M., 864
Schechter, Eliot, 256
Scheel, Axel, 1361
Scher, Maurice Alfred, 348
Schick, Martin F., 622
Schilling, Albert Henry, 1729
Schlein, Julius, 1160
Schmidt, Walter William, 1729
Schneck, Sereno Watson, 1160
Schneider, Frank Carl Emil, 469
Schnitzer, Johann Otto, 1160
Schoen, William Aaron, 545
Schrift, Joseph, 469
Schroer, Harry T., 1254
Schuette, William Henry, 1447
Schuitema, Donald Milo, 545
Schuller, Francis Xavier, 545
Schureman, Oliver Perry, 1254
Scimeca, Anthony J., 1729
Scott, Zachariah James, 1160
Seaman, Benjamin Franklin, 1160
Seedenburg, Jesse Peightal, 1729
Seelig, Major Gabriel, 346
Selig, Lew, 955
Seliger, Robert Victor, 542
Sellers, Galen Krauth, 864
Selo, Herbert Louis, 1355
Shagrin, Arthur W., 1254
Shamansky, Harry Solomon, 1548
Shea, John, 1729
Sheehan, George Augustine, 1254
Sheftman, Murray, 1447
Sherwood, Harry, 1447
Shiffman, Harry, 469
Shivers, George Clausman, 542
Shukuris, Avraam Andronious, 1729
Sibila, Alvin Oscar, 1160
Siegel, Charles Milton, 1160
Silverberg, Morris Harold, 955
Silvers, James Monroe, 545
Simmons, Clifford F., 469
Simmons, John A., 1355
Simonsen, Karen Margrethe, 1361
Simpson, Carl Franklin, 1447
Singer, Erich, 1729
Sink, Frank Gordon, 545
Sinning, Charles Edward, 622
Skeer, Jacob, 468
Sleeper, Frank Warren, 1160
Sleet, Joseph Allen, 1160
Slemons, Clyde Calderwood, 1158
Smith, A. Macrae Jr., 1160
Smith, Benjamin T., 1729
Smith, DeSaussure Dugas, 955
Smith, Earle Edwin, 1729
Smith, Erle Fisk, 348
Smith, Franklin Charles, 545
Smith, Glenn Jones, 1355
Smith, H. Mason, 1727
Smith, James David, 469
Smith, James Dismukes, 864
Smith, James Henderson, 1729
Smith, Mary Hopkins, 1254
Smith, Paul James, 955
Smith, Philip Weber, 545
Smith, Reuben Milton, 469
Smith, Sidney Bertrand, 955
Smith, Victor Conway, 1355
Smith, Waldo Emerson, 1254
Smith, Warren Clifton, 1356

Deaths—Continued
Smith, Will Remeses, 1356
Smith-Petersen, Marius Nygaard, 1252
Snook, Lee Owen Jr., 1729
Snow, Glenadine Calkins, 1647
Snyder, Simon Barron, 1729
Spotanski, Stanley Joseph, 256
Stafford, Frederick Burcham, 256
Stafford, Harry Howard, 1254
Standerfer, James Beverly, 67
Stapler, Andrew H., 955
Staton, Torrence Ripley, 1356
Steele, Albert Edward, 545
Steele, George Louis, 469
Stefanelli, Eugene Renna, 955
Steiner, Samuel, 545
Steinfield, Winton, 1447
Stephens, Anna Overholt, 1729
Sternberg, Joseph D., 1729
Stevenson, Frank Earl, 1727
Stiefel, Benjamin Wolf, 955
Stimson, George William, 1356
Stith, Robert Boyd Jr., 622
Stocker, Harry, 1356
Stone, Jacob Clay, 256
Stouffer, Clyde Bruce, 1729
Strain, Earle, 1254
Strumwasser, Samuel, 955
Sum, Othmar John, 1356
Sumner, Gorden Sykes, 622
Sumner, Roy S., 1254
Swift, Samuel, 1356
Swindler, Edwin Booth, 1447
Switzer, David M., 1160
Sybert, George Bradley, 1254

T

Talbott, Thomas John, 1254
Tarpinian, Haroutune Asadour, 1160
Taylor, Mervyn Ross, 955
Taylor, William Ivey, 622
Teel, Ambrose Wilson, 622
Telfer, Gavin James, 750
Tenczar, John Francis, 1356
Tetelman, Michael Martin, 545
Thieme, Harry Lankford, 1356
Thomas, Claude LeRoy, 1447
Thompson, Clyde Coleman, 622
Thompson, George Hocken, 256
Thompson, William Edward, 1447
Thorne, Nathan, 955
Thornton, Francis Eugene, 1356
Tolleson, William A., 178
Toole, John Edward, 1160
Townsend, Wilmot Charles, 1356
Tractenberg, Isaac S., 545
Treacy, Alfred Joseph M., 1447
Trick, Harold William, 955
Troutman, George Christian, 1729
Truex, William Elmer, 751
Tucker, Jesse E., 622
Turbert, Edward Joseph, 542
Turner, James William, 469
Turner, Thomas J., 469
Turney, Lester Ferris, 1160
Turnoff, David, 1447

U

Urbanski, Walter Joseph, 1729
Utter, John William, 1254

V

Van Ingen, Philip, 346
Van Studdiford, Martin Thomas, 1356
Veale, Emory Oslin Sr., 955
Veneruso, Leonard Charles, 1356
Vonnahme, Conrad Benedict, 1447

W

Wachowiak, Marion, 545
Wadsworth, Emory M., 469
Wadsworth, John V., 1356
Wagenhals, Franklin Clark, 622
Wagley, Perry Vernon, 1353
Wagner, Adam Franklin, 751
Wagoner, Robert Henry, 1160
Wahl, Spencer Alwyn, 1356
Wahlen, John Albert, 1160
Walker, Francis Milton, 1729
Walker, Lewis Winston, 622
Walker, Robert Irving, 1160
Walker, Theodore Lee, 1160
Wallace, John C., 1729
Wallace, Paul Bartlett, 1729
Wallin, Maurice Benjamin, 1356
Walton, Josiah Harry, 1356
Warinner, Algernon Storrs, 1727
Waterman, Isaiah John, 1160
Watkins, Otis Lee, 1160
Watt, Charles Channing Jr., 469
Watts, Stephen Hurt, 1447
Webb, William Thomas, 1447
Weintrob, Morris, 468
Wells, Frank Happersett, 1729
Wenstrand, David E. W., 1356
Werner, Robert Frederic, 1160
Whalen, John Francis, 1727
Whipper, Ionia Rollin, 1447
White, Joshua Warren, 622
White, Mary Harriet, 469
White, Wendell Jones, 1356
White, William Henry Clay, 1548
Whiteside, Jesse DuBois, 1729
Widing, Herbert Andrew, 1356
Widney, John Theodore Bland, 622
Wiggers, Herbert August, 1445
Wilbur, Herbert Lincoln, 622
Wilde, Roger Conant, 1447
Wilder, Don Eugene, 1356
Wiley, Arthur Goodwin, 955
Wilkinson, Michael Robert, 622
Wilkinson, William W., 178
Williams, David, 955
Williams, Ford Smith, 1060
Williams, Frederick Smith, 1447
Williams, John Watkins, 1356
Williamson, Cleburne Milton, 1447
Willis, Morton William, 1447
Willis, Palestine T., 1160
Wills, John Walter, 545
Willson, Sara Thomasina Chase, 178
Wilson, George Wheeler, 1447
Wilson, Harry Edmond, 1160
Wilson, Mark Stanley, 545
Wilson, Pitt Stevens, 955
Wilson, William Franklin, 1729
Wilson, William Hansford, 469
Wingfield, Hudson Mason, 955
Wittwer, Ernest Alvin, 955
Wolf, Charles N., 1447
Wolf, Louis Harry, 469
Wolfe, Jacob S., 1447
Wolff, Walter Hans, 622
Wolk, Melvin, 1729
Wood, Kenneth, 955
Woodhouse, Floyd Eugene, 955
Woods, Robert Andrew, 1447
Worthington, Ernest Jerome, 1356
Wortman, Arthur Vance, 178
Wright, Harper, 1356
Wright, Herbert L., 256
Wright, Thomas Rogers, 469
Wunderlich, Edwin B., 1548

X

Xavier, Frank Kuczewski, 469

Y

Yeomans, Andrew, 1060
Yingling, Estey Cecil, 622
Young, Jack Rufus, 1160
Young, William B., 1729

Z

Zabokrtsky, Joseph, 1729
Zimmerman, Albert Sidney, 1729
Zimmerman, Ira Melvin, 955
Zwick, Karl George, 1447

E

E COMPOUND: See Cortisone
EMIC: See Emergency Maternity and Infant Care Program
EAR: See also Deafness; Hearing; Oto—
  Middle, Infection of: See Otitis Media
  removal of cerumen; composition of cerumen, 1585
  Ringing in: See Tinnitus
EARNINGS: See Income; Wages
EASTMAN KODAK COMPANY
  gift to Northside Hospital, 1055
EATING: See Diet; Feeding; Food
  Utensils: See Cooking and Eating Utensils
ECLAMPSIA
  treatment, cortisone and corticotropin in, [Howdon] 360—ab
  treatment, denervation of internal iliac vessels, [Theobald] 561—ab
ECONOMICS
  social aspect of food rationing, Israel, 1256
ECONOMICS, MEDICAL: See also Insurance, sickness; Medical Service; Medically Indigent
  ambulance service costs, England, 1650
  A.M.A. Bureau of Medical Economic Research: See American Medical Association
  cost of medical service, [Allen] *660
  direct medical service plan in hotel industry, [Guidotti] *788
  Great Britain's drug bill; how to reduce 1650
  hospitals costs, (London) 353; (Denmark) 624
  "How Much Should Your Doctor Charge?" in *Woman's Home Companion*, 924
  1952 medical care dollar, 1635—E
  old and new base periods for medical care price indexes, 1341—E; (Bureau article) [Dickinson] *1365
  plight of hospital: reducing operating costs depends on physicians' orders, [Howe] 1260—C
  who pays the hospital? Conn., 1346
ECTOPARASITES: See Parasites
ECZEMA
  allergic, antibodies in, [Haxthausen] 481—ab
  any danger in vaccination of child with? 1392
  atopic, of childhood, role of emotions in dermatoses, [Frumess] *1419
  Contact: See Dermatitis venenata
  nickel, skin sensitivity in 58 patients, [Morgan] 1178—ab
  syndrome; hazards of "improved" flour, London, 353; [Pollock] 1066—C; [Sheldon] 1179—ab
  treatment, trypsin injection, [Innerfield & others] *597
EDEMA: See also Ascites; Dermatomyositis; under names of specific organs as Lungs
  General or Universal, of Newborn: See Erythroblastosis, Fetal
  lymphostatic verrucosis of amputation stump: treated by pressure bandage, [Loewenthal] 475—C
EDEMA—Continued
  nephrotic, dextran for, [Olive] 1376—ab
  of unknown cause, 1393
  phenylbutazone and water retention, [Johnston] 75—C
  treatment, cation exchange, [de Soldati] 1279—ab
EDROPHONIUM CHLORIDE (*Tensilon Chloride*)
  drugs affecting skeletal muscle, 495—ab
  effect in myasthenia gravis, [Westerberg] 1173—ab
  N.N.R., (description) 1714; (Hoffmann-LaRoche) 1715
EDUCATION: See also Children, school; Schools; Students
  Audiovisual: See Moving Pictures; Television
  federal aid to, federal bills on, A.M.A. position on, 1048; 1240
  for professional services, 1406—ab; 1618—ab
  Health Education: See Health
  Higher: See University
  of Nurses: See Nurses and Nursing
  United States Department of Health, Education and Welfare: See United States
EDUCATION, MEDICAL: See also Graduates; Schools, Medical; Students, Medical; University
  A.M.A. Council on: See American Medical Association
  A.M.A. resolutions on compact of Western States for, 847
  American Medical Education Foundation, [Bauer] 723; (report) 742: (List of donors giving $1,000 or more) 743; (A.M.A. resolution on) 844; ($10,000 gift of Woman's Auxiliary to) 855; (A. M. A. motion of appreciation to the chairman, Dr. Henderson) 856; (2nd annual report reports progress) 1044—E; (correction) 1443
  American medicine's report to nation, [McCormick] *486
  Courses: See also subheads: Curriculum; Graduate Course
  courses for general practitioners, Tenn., 537
  courses (refresher) for foreign-trained physicians from unapproved schools, [Burgess & Graef] 1260—C
  Curriculum: See also subhead: Teaching
  curriculum as related to medical practice, [Allen] *659
  curriculum, toxicology in (Council report), *709
  Factbook on Medical Education by A.M.A. Council, 54
  Fellowships: See Fellowships
  graduate, continuation courses for physicians July 1953-Jan. 1954, 612—E; *629
  graduate, contributions to undergraduate education, [Pullen] 1666—ab
  graduate course at Duke, N. C., 617
  graduate, course in medicine and surgery, Miss., 1439
EDUCATION, MEDICAL—Continued
  graduate, Interamerican Foundation for Postgraduate Medical Education organized, 538
  graduate school created at U. of Chile, 866
  graduate study, Starlight (Pa.) plan for, 538
  graduate training, A. M.A. resolution on re-evaluation of, 848
  hospital service, internship and its place in, 828; 831
  in Australia, 624
  Internship: See Interns and Internships
  National Fund for Medical Education, (medical school crisis discussed by Pittsburgh business leaders), 746; (address of Dr. Lahey), 853
  Postgraduate: See subhead: Graduate
  Premedical: See also Basic Sciences
  premedical, requirements of licensing boards, *434; *436
  recordings of telephone broadcasts, Tex., 464
  Residents; Residencies: See Residents and Residencies
  Scholarships: See Scholarships
  Teaching: See also subhead: Curriculum
  teaching auscultation by endless loop tape recording, [Geckeler & others] *1335
  teaching industrial health to students, need for, (Council report) [Kehoe] *1262
  teaching social medicine, London, 261
  training program for college health physicians at 5 universities, [Sander] 756—C
  World Conference on (first), 344
EEK, KAREN MARGRETHE SIMONSEN, death, Norway, 1361
EFFICIENCY
  indexes of, applicants for research fellowships, [Bowen] *696
EFFORT
  Angina of: See Angina Pectoris
  does exertion precipitate coronary thrombosis? [Richardson] 88—ab
EFFUSION
  in Joints: See Hydrarthrosis
EFOCAINE
  discontinue use as nerve block anesthesia, [Eastwood & Bartlett] 1067—C
  neurological complications after using, [Shapiro & Norman] *608
EGGS
  influenza virus vaccine prepared with egg material, 775
  powdered yolk, Salmonella Montevideo infection from, [Southard & others] *1432
EINSTEIN College of Medicine, N. Y., 172
ELASTIC Stockings: See Hosiery
ELBOW: See also Humerus
  dislocation, Volkmann's ischemia after, arterectomy for, [Sarkar] 96—ab
  fractures (car window), [Carswell] 1559—ab
  lesions, nylon prosthesis in, [MacAusland] 188—ab

- ELDERLY: See Old Age
- ELDRIDGE-GREEN, FREDERICK WILLIAM, death, 1058
- ELECTRIC: See also Electro—; Photoelectric
  - alarm (automatic) to control nocturnal enuresis, [Geppert] *381; [Fischer] 1732—C
  - Current: See also Diathermy; Ion Transfer
  - Current Stimulation: See Stimulation, electrical
  - generator, Teca Low Volt and Pulse Generator, Model CD4P, 47
  - Hearing Aids: See Hearing Aids
  - High Frequency Current: See Diathermy
  - insecticide vaporizer, health hazards, (Committee report) *1232; 1238—E
  - Lighting: See Lighting
  - shock, Electroshock Research Association, meeting, 61
  - shock treatment, curare used in, [Gottlieb] 1370—ab
  - shock treatment, succinylcholine in, [Adderley] 95—ab; [Holmberg] 1384—ab
  - shock treatment with defibrillator in cardiac resuscitation, [Leeds] *1411
  - voltmeter, to determine difference in photoelectrometric hemoglobin level determinations, (reply) [Remer] 108
  - Welding: See Welding
- ELECTROCARDIOGRAM: See Heart
- ELECTROCOMA: See Electric shock treatment
- ELECTROENCEPHALOGRAPHY: See Brain
- ELECTROLYSIS
  - transcerebral, in treatment of hemiplegia, Paris, 182
- ELECTROLYTES
  - change in, in parathion poisoning, [Annis & Williams] *594
  - disturbances in prostatism, [Lapides] *1305
  - hyperchloremic acidosis after ureterosigmoidostomy, 334—E
  - imbalance after ureterointestinal anastomosis, [Berglin] 281—ab
  - imbalances, combating in acute pancreatitis, [Berk] *3
  - loss of, and requirements in burns, [Reiss & others] *1309; (chart) *1312
- ELECTROMYOGRAPHY: See Muscles
- ELECTRONS
  - high energy, for superficial malignant lesions, [Evans] 1462—ab
  - Microscopy using: See Microscopy
- ELECTROPHORESIS: See Ion Transfer
- ELECTROSHOCK: See Electric shock
- ELECTROSTIMULATION: See Stimulation; Stimulator
- ELECTROTHERAPY: See Electric shock treatment
- ELECTROTHERMY: See Diathermy
- ELVEHJEM, C. A.: importance of food in preventive medicine, 1537—E
- EMBOLISM: See also Thrombosis
  - air, after artificial pneumothorax, 293; (replies) [Bean; Weiss; Birch] 1500
  - air, audible chest noises, [Bean] *1297
  - amniotic fluid, [Dyer] 277—ab
  - amniotic fluid, with resultant postpartum hemorrhage due to afibrinogenemia (Lee-White clotting test), [Reid & others] *227
  - cerebral, cardiac myxoma with, [Russell] 286—ab
  - pulmonary, by amniotic fluid, [Reid & others] 267—C
  - pulmonary fatal, during anticoagulant therapy for thrombosis, [Merz] 1672—ab
  - Thromboembolism: See Thrombosis
  - treatment, anticoagulant, in gynecology and obstetrics, [König] 194—ab
  - treatment, trypsin injection, [Innerfield & others] *597
- EMBRYO: See Fetus
- EMERGENCY
  - Maternal and Infant Care program, report by A.M.A. Council on Medical Service, 758
  - Medical Service: See also First Aid
  - Medical Service, A.M.A. Council on National Emergency Medical Service: See American Medical Association
  - medical service: call plan of New Haven Medical Association, Conn., 615
  - poliomyelitis equipment, Maine, 1054
  - tracheotomy, 1525—ab
  - treatment of adrenocortical insufficiency, 1494
- EMESIS: See Vomiting
- EMIGRÉ Physicians: See Physicians, foreign
- EMOTIONS: See also Mental Depression; Mental Health; Psychosomatic Medicine
  - Emotional Health (*film review*), 272
  - problems of epilepsy, [Lennox & Markham] *1690
  - role in dermatoses, [Furmess] *1417
  - treatment centers for emotionally disturbed children, 956
- EMPHYSEMA
  - Heart (cor pulmonale): See Heart hypertrophy
  - mediastinal traumatic, sounds audible in, [Bean] *1296
  - pulmonary, in welders, [Charr] *1520
  - pulmonary, rate of gaseous nitrogen elimination, [Boothby & others] *1000
- EMPLOYEES: Employment: See Industrial Health
- EMPLOYMENT Opportunities for Physicians: See Physicians, positions open
- EMPYEMA
  - postoperative, erythromycin for, [Herrell & others] *1605
  - treatment, trypsin injection, [Innerfield & others] *597
- ENCEPHALITIS: See also Encephalomyelitis; Meningoencephalitis
  - differentiating from poliomyelitis, [Grulee] *1587
  - postmeasles, respiratory difficulty in, [Weinstein] 1560—ab
- ENCEPHALOGRAPHY: See Brain, roentgen study
- ENCEPHALOMENINGITIS: See Meningoencephalitis
- ENCEPHALOMYELITIS
  - measles, [Fox] 1459—ab
- ENCEPHALOMYELOPATHY with icterus: See Kernicterus
- ENDAMEBA
  - Infection: See Amebiasis; Colitis, amebic
- ENDARTERITIS
  - obliterans, intra-arterial injection of antazoline in, [Marinoni] 1381—ab
- ENDOCARDITIS
  - bacterial subacute, associated with optic neuritis, [Fisher] 628—C
  - bacterial subacute due to Proteus mirabilis in 70-year-old woman, [Weiser] 1261—C
  - bacterial subacute, present day treatment, (Minot lecture), [Keefer] *1397
  - bacterial subacute treated with antibiotics, [Donzelot] 1076—ab
  - bacterial subacute, treated with chloramphenicol and oxytetracycline, [Garrido Lecca & Tola] *913
  - prevalence in New England, contrast between 1925 and 1950, [White] *303
  - staphylococcic, treated with neomycin, [Reed & Wellman] *702
- ENDOCARDIUM
  - fibroelastosis and primary heart failure in infants, [Clément] 193—ab
  - fibrosis, clinical diagnosis, [Lambert] 1174—ab
  - subendocardial trauma from cardiac catheterization, [Sancetta] 1265—ab
- ENDOCRINOLOGY
  - awards, 948
- ENDOMETRIOSIS
  - cause of sterility, 1395
  - pathogenesis, [Petri] 481—ab
  - renal, [Blum] 283—ab
- ENDOMETRIUM
  - Aberrant: See Endometriosis
  - cancer and hepatic cirrhosis, [Brewer] 278—ab
  - cancer, biopsy disagrees with surgically removed specimen, [Gandolfo Herrera] 770—ab
  - tuberculosis, [Bedrine] 1277—ab
  - [illegible] and *p*-amino-

  - phacoanaphylactica from fish lens protein injection for cataract, [Breinin] *698
- ENDOSCOPY
  - treatment plus thoracotomy in impenetrable cicatricial obliteration of thoracic esophagus, [Barbosa & others] *1103
- ENEMA
  - barium, reduce ileocecal intussusception with hydrostatic pressure, [Girdany] 1567—ab
  - tips, simplified treatment of lacerations of rectum from, [Turell] *136
  - unnecessary postoperative routine orders, [Harbison] *398
- ENERGY: See Effort
  - Atomic: See Atomic Energy
  - Metabolism: See Metabolism, basal
  - Ultrasonic: See Ultrasonics
  - Value of Food: See Calories
- ENGLAND: See British; Great Britain; Royal College
- ENLISTED Men or Women: See Armed Forces; Army, U. S. Medical Preparedness; Navy, U. S.
- ENTERITIS: See Gastroenteritis; Intestines inflammation
- ENTEROBIASIS: See Oxyuriasis
- ENURESIS: See Urine, incontinence
- ENZAR: See Trypsin
- ENZYMES: See also under specific names as Hyaluronidase; Streptokinase-Streptodornase
  - vitamins and, Italy, 1453
  - nutrition and apoenzymes, 710—E
- EONISM
  - transvestism, [Hamburger & others] *391; [Wiedeman] 1167—C; [Ostow] 1552—C
- EOSINOPHILIC GRANULOMA: *See Granloma*
- EOSINOPHILS
  - circulating, and specific desentization in hay fever, [Dragstedt] 1475—ab
  - in patients with sarcoidosis treated by cortisone, 1394
  - in trichinosis, [Kushlan] *221
- EPHELIDES (freckles)
  - treatment, monobenzyl ether of hydroquinone (benoquin), [Lerner & Fitzpatrick] *577
- EPIDEMIC JAUNDICE: See Liver Inflammation
- EPIDEMIC PAROTITIS: See Mumps
- EPIDEMICS: See also Communicable Diseases; under names of specific diseases Mumps; Nephritis; Q Fever
  - Prevention: See Immunization; Quarantine; (cross reference); Vaccination
  - warning cable code, WHO publishes, 1440
- EPIDERMIS: See Skin
- EPIDERMOLYSIS BULLOSA
  - heredity, prognosis, incidence in Denmark, [Bülow] 1575—ab
- EPIDERMOPHYTOSIS interdigitalis: See Dermatophytosis
- EPILEPSY
  - caused by cerebral tumors, [Pallias] 1486—ab
  - grand mal seizures developing in patients over 35, [Berlin] *794
  - marriage of epileptics, [Lennox & Markham] *1692
  - physician epileptics, [Lennox & Markham] *1694
  - radioactive iodinated serum albumin and scintillation counter studies in, [Ashkenazy] 86—ab
  - treatment, anterior temporal lobectomy, [Obrador] 90—ab
  - treatment, compare results from various methods, [Putnam Rothenberg] *1400
  - treatment, hemispherectomy, [Feld] 1386—ab
  - treatment, intensive narcosis, [Putnam & Rothenberg] *1400
  - treatment, sociopsychological, [Lennox & Markham] *1690
- EPINEPHRINE: See also Arterenol (Norepinephrine)
  - effect on cardiovascular apparatus, [Bardelli] 1487—ab
  - useful in cardiac resuscitation, [Leeds] *1411
- EPIPHARYNX: See Nasopharynx
- EPIPHYSES
  - arrest of growth from epiphysial disk, 566
- *EPISIOTOMY*
  - considered part of normal obstetrics? 292
- EPITHELIOMA
  - Chorioepithelioma: See Choriocarcinoma
- EPITHELIUM: See Tissues
- EPSOM Salts: See Magnesium sulfate
- EQUIPMENT: See Apparatus; Medical Supplies
- ERB-Goldflam's Disease: See Myasthenia Gravis
- ERECTIONS
  - nocturnal, (reply), [Konrad] 986
- ERGOT
  - derivative: lysergic acid ethylamide, treatment of mental disorders, [Solms] 1487—ab
- ERRORS
  - in laboratory procedures, [Henry & Berkman] 1166—C
- ERUPTIONS: See also Epidermolysis bullosa; Herpes; Measles; Rubella; Scarlet Fever; Urticaria; etc.
  - drug, 307—ab
  - Industrial: See Industrial Dermatoses
  - iodide and bromide, 1392
- ERYTHEMA: See also Lupus erythematosus
  - annulare centrifugum as dermatophytid, [Jillson] 187—ab
  - nodosum, Primer on Rheumatic Diseases, *414
  - nodosum, repeated attacks, 1497
- ERYTHREMIA: See Polycythemia
- ERYTHROBLASTOSIS, FETAL
  - deficiency of prothrombin and fibrinogen in, [Rice] 277—ab
  - isoimmunization during pregnancy to prevent, [Pettenkofer] 1079—ab
  - kernicterus and prematurity, [Govan] 1278—ab
  - should mother nurse erythroblastotic babies? 1396
  - treatment, exchange transfusions in infants, 484
  - tubal ligation in Rh-negative mother, 295; (reply), [Cone] 1500
- ERYTHROCIN: See Erythromycin
- ERYTHROCYTES
  - agglutination, effect of antihistamines on, [Lucia] 1468—ab
  - Count: See also Anemia, Pernicious; Polycythemia
  - count, errors in laboratory procedures, [Henry & Berkman] 1166—C
  - hematopoietic depression induced by chloramphenicol, [Ersler] 87—ab
  - hypoplasia, caused by drug idiosyncrasy, (Council report), [Osgood] *816; 823—E
  - ovalocytosis, 985
  - packed red blood cells as source of protein for parenteral use, [Calloway & Mowrey] *777
  - Sickling: See Anemia, sickle cell
  - storage at subzero temperature after dehydrating with glycerin, [Brown] 1264—ab
- ERYTHROMYCIN (Erythrocin; Ilotycin)
  - cross resistance to, [Finland] 190—ab
  - to counteract staphylococcic enteritis from antibiotic therapy, [Dearing] 1073—ab
  - treatment of infections from Micrococcus pyogenes, [Herrell & others] *1601
- ESKACILLIN: See Penicillin
- ESOMID: See Hexamethonium

ESOPHAGUS
  atresia; anastomosis of esophageal segments, [Grow & Neerken] *1614
  [illegible] metastatic cancer in-[illegible] 1474—ab
  [illegible] lower part causes dysphagia, [Ingelfinger] 1269—ab
  curling of, [Eskridge] 1175—ab
  Fistula: See Fistula
  *foreign body (broken denture) in, causes middle lobe syndrome, [Valle & Cloutier] *812*
  obstruction due to Serutan, [Melamed & Marck] *318
  plastic prosthesis: polyvinyl tubes, [Chalnot] 193—ab
  rupture, sounds audible in, [Bean] *1293
  speech institute, Ohio, 1440
  surgery, Reconstruction of Esophagus by Jejunal Transplant (film review), 965
  thoracic, impenetrable cicatricial obliteration, thoracotomy and endoscopy for [Barbosa & others] *1103
  ulcer (benign) with chronic acetanilid poisoning ("Yum"), [Wolfson & Greenberg] *910
  ulcer in severe kyphoscoliosis, [Haubrich] 1480—ab
  varices, transesophageal obliteration for, [Crile] 1568—ab
  varices, treat bleeding by dividing hepatic and splenic arteries, [Miller & Owen] *377
ESSAY
  Contest for: See Prizes
ESTERASE
  procaine test in liver disorders, [Hazard] 1078—ab
ESTRADIOL: See also Ethinyl Estradiol
  treatment plus, progesterone, and testosterone for menopause, [Juster] 1280—ab
  U S.P., N.N.R., (Chicago Pharmacal), 332
ESTROGENS: See also Dienestrol; Estradiol; Estrone
  Diethylstilbestrol: See Diethylstilbestrol
  intratesticular implants in prostatic cancer, [Darget] 1276—ab
  toxicity: pseudoprecocious puberty in girl of 4 after taking, [Cook] 1471—ab
  treatment (intensive) in advanced breast cancer, (Council report), [Kennedy & Nathanson] *1135
  treatment of cervical hostility to spermatozoa, [Campos da Paz] 1372—ab
  treatment of transvestism, [Hamburger & others] *391; [Wiedeman] 1167—C; [Ostow] 1552—C
  treatment plus androgens for menopausal syndrome, [de Watteville] 98—ab
ESTRONE (Theelin)
  U.S.P., N.N.R., (Thebestrin of thelestrin Chicago Pharmacal), 332; (Lilly) 1339
ETHER
  mask modified for giving ether, air, and oxygen simultaneously, [Stodsky] *1714
ETHICS, MEDICAL
  [Bauer] 722
  Belgian Society of International Medical Law, 350
  A.M.A. resolution on, 842
  A.M.A. resolution on billing for cooperative care of patient by 2 physicians, 844
  A.M.A. resolution on Dr. Hawley and others for publicizing ghost surgery, fee splitting and unnecessary operations, 839; 840; 841; 842
  A.M.A. resolution on Dr. Hawley's interview by *U. S. News and World Report,* 839; 841
  A.M.A. resolutions on public criticism of physicians, 840
  expel physicians from our ranks who are unethical, dishonest, and unfair, [McCormick] *486
  PRINCIPLES OF MEDICAL ETHICS, revision, amendment and clarification, 827; 828; 850; 851
  relationships between physicians, A.M.A. resolution on, 840
  surgery and medical morality, [Del Regato] 77—C
ETHINYL ESTRADIOL
  incidence of side-effects, (Council report), [Kennedy & Nathanson] *1140
ETHOHEXADIOL (Rutgers 612)
  committee report on names for pesticides, *820
ETHYL BISCOUMACETATE (Tromexan)
  treatment of thrombosis and embolism in gynecology and obstetrics, [König] 194—ab
*di*ETHYLSTILBESTROL: See Diethylstilbestrol
ETHYLTHIOURACIL
  treatment of hyperthyroidism, [Solomon & others *201
EUROPE
  safety of milk products in, 1288
EVANESCENT mass in supraclavicular fossa: hydrocele of neck, (reply) [Seed] 776
EVEREST
  Mount Everest expedition, London, 1454
EVERGREENS: See Pine
EVIDENCE: See Medicolegal Abstracts at end of letter M
EVIPAN: See Hexobarbital
EWING'S SARCOMA: See Sarcoma
EXAMINATION: See Basic Sciences; Licensure; National Board of Medical Examiners
  Physical: See Physical Examination
EXANTHEMS: See *Eruptions*
EXCHANGE Students. See Students, Medical
EXCHANGE Transfusion: See Blood Transfusion
EXERCISE: See also Athletics; Effort; Golf; Swimming
  therapeutic, of sphincter muscles for stress incontinence, [Wharton] 1561—ab
EXERTION: See Effort
EXHIBITS: See Art; Health Museum; Medicine, history; Physicians, avocations; Postage Stamps
  A.M A. Bureau of: See American Medical *Association*
  A.M A Scientific Exhibit: See American *Medical Association*
EXOPHTHALMIC GOITER: See Goiter, Toxic
EXOPHTHALMOS: See also Goiter, Toxic
  experimental, effect of hyaluronidase on, *[Nuzum] 1377*—ab
EXPANDEX: See Dextran
EXPECTORATION: See Sputum
EXPEDITIONS
  Mount Everest, 1454
EXPERIMENTATION: See Research
EXPIRATION: See Respiration
EXPLOSIONS
  Atomic: See Atomic Energy
EXPLOSIVES: See Fireworks
EX-SERVICE MEN: See Veterans
EXTRACELLULAR FLUIDS: See Fluids, Body
EXTRASYSTOLES: See Arrhythmia
EXTREMITIES: See also Arms; Foot; Legs
  Amputation: See Amputation
  Artificial: See Limbs, Artificial
  Blood Supply: See also Raynaud's Disease; Thromboangiitis Obliterans
  blood supply, recording oscillometer, [Chandler & Dickinson] *901
  dystrophy of, Sudeck's syndrome, [Hackethal] 1476—ab
  pains in, as only early diagnostic sign of pulmonary cancer, [Ruggieri] 1280—ab
  Paralysis: See Hemiplegia; Paraplegia
  Peripheral Vascular Disease: See Blood Vessels
  ulcerative disease (familial), Belgium, 350
EYEGLASSES: See Glasses
EYELIDS
  Granular Lids: See Trachoma
  lesions of mucocutaneous junctions in pyridoxine deficiency, [Ramalingaswami] 361—ab
  melanosis (congenital), benoquin for [Lerner *& Fitzpatrick] *577*
  scars on, in boxers, 1738
EYES: See also Blindness; Conjunctiva; Glasses; Lens, *Crystalline; Nerves, optic;* [illegible]na; Sclera; Vision;
  [illegible] at end of letter M
  [illegible] article) [Theodore &
  [illegible]blished, 463
  [illegible] cortisone *effect on,*
  [illegible]
  burns (chemical), calsulfhydryl for, [Harley] 1460—ab
  burns, sulfhydryl treatment, [Havener] 1538—ab
  complications in brucellosis, [Solanes] 1658—ab
  crush syndrome and, [Weinstein] 1658—ab
  Disease: See Cataract, Conjunctivitis; *Glaucoma*; Iridocyclitis; Trachoma; etc.
  electric arc welding: at what distance is it harmful to bystander's eyes, 1083
  eye wash, choline and methylene blue in, 1498
  foreign bodies, [Lynch] 189—ab
  given for ophthalmic research at Louisiana State U., 945
  implants for treatment of myopia and retinitis pigmentosa, Paris, 868
  oculomotor paralysis in diabetic, 656
  Ophthalmic Ointment Gantrisin Diethanolamine, N.[illegible]
  ophthalmic [illegible] and maintaini[illegible] & Feinstein] *1631
  paralysis, pyretotherapy in ophthalmoplegic migraine, [Patrikios] 1656—ab
  Parinaud's oculoglandular syndrome and cat scratch disease, 1717—E
  Protrusion: See Exophthalmos
  surgery, cortisone drops after intraocular surgery, 1292
  surgery, present status of goniotomy, [Barkan] 1462—ab
  tuberculosis, antibiotics in, Turkey, 1455
EYESIGHT: See Vision

F

F COMPOUND: See Hydrocortisone
FABRICS: See Clothing
FACE: See also Head; Jaws; Lips; Mouth; Nose
  Cream: See Cosmetics
  Mask: See Mask
  Paralysis: See Paralysis
  perforating wound from blunt object (lead pipe), [Black & McClintock] *519
FACTORY: See Industrial Health; etc.
FACULTY: See Schools, Medical
FAINTING: See Syncope
FALLOPIAN TUBES: See Oviducts
FALLOT
  Tetralogy of: See Heart anomalies
  Trilogy of: See Heart anomalies
FAME: See Hall of Fame
FAMILIES: See Children; Infants; Maternity; Parents; Paternity
FARM: See also Farmers; Rural Communities
  well water on, how to reduce excessive fluorides in, 104
FARMERS
  lung, [Fuller] 1387—ab
FASCIA
  fasciitis, Primer on Rheumatic Diseases, *529
  plantar, on os calcis, 880
FASTING: See Starvation
FAT: See also Lipids; Obesity
  atrophy after insulin injections, 376
  Dystrophy: See Lipodystrophy
  high caloric fat emulsion, orally for total *feeding, [Kuhl] 1468*—ab
  Subcutaneous, Disease of: See Panniculitis
FATHER: See Paternity
FATIGUE: See Asthenia
FATTY DEGENERATION
  of liver after aureomycin *therapy, [Pagliei]* 1180—ab
FEATHERS
  sensitivity to, in sinusitis, 1676
FECES: See also Meconium
  blood in, guaiac test in annual physical examination, (replies) [Hulett] 882
  blood in, screening method to *detect occult* blood: guaiac or benzidine tests, [Mendeloff] *798
  defecation, pain in arm associated with bowel movements, 1396
  examination of, to study pancreas function, [Dreiling] 1472—ab
  excreta from toilets on trains; role in transmission of poliomyelitis, 1183
  filtrates in viral hepatitis, 612—E
  Loose Stools: See Diarrhea
FECUNDITY: See Fertility
FEDERAL: See also United States
  Control of Medical Care: See Insurance, sickness (compulsory)
  Government: See United States government
  Income Tax: See Tax
  Legislation: See Laws and Legislation, federal
  Medical Services, A.M A. resolution on reconsidering *report of special committee on,* 838
  Security Agency: See Health, U S.P.H.S.
FEDERATION: See World Federation; list of societies at end of letter S
FEE: See Fees
FEEBLEMINDED: See Idiocy; Mental Defectives
FEEDING: See also Diet; Food
  Infant's: See Infants
  Parenteral: See Injections
  total, high caloric fat emulsion orally for, [Kuhl] 1468—ab
FEES: See also Wages
  A M.A resolutions on billing for cooperative care of patient by 2 physicians, 844
  basic science, *451
  license, *437; *439
  medical care for indigent in Richmond, Va., *Council report, 268*
  old *and new base periods for* medical care price indexes, 1341—E; (Bureau article) *[Dickinson] *1365*
  privilege tax by hospitals: physicians give *per cent of fees for using* hospital, 728
  splitting, A.M.A. resolution on Dr. Hawley *and others publicizing,* 839; 840; 841; 842
FEET: See Foot
FEINBLOOM, WILLIAM, telescopic lenses to improve vision developed by, 1292
FELLOWSHIPS: See *also* Scholarships
  Alpha Gamma Delta, available from National Society for Crippled Children, 174
  American Academy of Pediatrics, 464
  American Cancer Society, 343; 747
  American Heart Association (awards) 538; (applications available) 1441
  Fellowship for Freedom in Medicine, London, 1454
  honorary, Rome surgeons honor Americans, 947
  in allergy at Northwestern, 536
  Life Insurance Medical Research Foundation, available, 1641
  Miller (James Alexander) for tuberculosis *research, 1056; 1540*
  National Foundation for Infantile Paralysis, *(for psychiatrists)* 1441
  National Institute of Neurological Diseases and Blind [illegible] 349 [illegible] *award*
  National M[illegible]rs, 1440 *to 46 Neg*[illegible]
  National Sci[illegible] cancer, *New Jersey* [illegible] 1347
  Palmer (Lowell M.) senior fellowships awarded, 1056

FELLOWSHIPS—Continued
  program for Israel, 747
  Reader (Ruth Berger), 61
  Rockefeller Foundation, subsequent careers of applicants for, [Bowen] *693
  Scaife, in pathology, Pa., 1640
  Schering, endocrinology, 948
  U.S.P.H.S., 1062
FEMUR
  fractures in Korean War, intramedullary fixation, [Carr] 276—ab
  fractures, structural changes around nails and screws in bones, [Collins] 652—ab
  necrosis of femoral head after fracture of hip, (reply) [Milch] 656
  tumor (giant cell), 1498
FERMENTS: See Enzymes
FERRIC; Ferrous: See Iron
FERTILITY: See also Spermatozoa; Sterility
  World Congress on (first) May 25-31, N. Y., *341*
FETAL ERYTHROBLASTOSIS: See Erythroblastosis
FETUS: See also Infants, Newborn; Placenta; Pregnancy
  Death: See Stillbirth
  effect of viral diseases in pregnancy, [Kaye] *85—ab*
  Erythroblastosis: See Erythroblastosis, Fetal
  meconium peritonitis after perforation of intestines in [Olnick & Hatcher] *582
  Premature: See Infants, premature
  Rh factor in: See Rh Factor
  roentgen studies during pregnancy, effect on, *(reply) [Schwarz] 776*
  Superfetation: See Superfetation
FEVER: See also Rheumatic Fever; Scarlet Fever; Typhoid; Typhus; Yellow Fever
  Blister: See Herpes labialis
  convulsions during, [Lennox] 1474—ab
  convulsions in early childhood, [Betke] 1379—ab
  Glandular: See Mononucleosis, Infectious
  hemorrhagic, clinical and laboratory study, [Barbero] 760—ab
  in 3 siblings, 1392
  low-grade, 483
  Malta: See Brucellosis
  Parrot: See Psittacosis
  Q: See Q Fever
  Relapsing: See Relapsing Fever
  Rocky Mountain Spotted Fever: See Rocky Mountain Spotted Fever
  therapeutic, in ophthalmoplegic migraine, [Patriklos] 1656—ab
  treatment, propyl alcohol sponging, acute poisoning in boy, [Garrison] *317
  Undulant: See Brucellosis
FIBERGLAS
  eruption from working with, 1290
FIBRIN
  fibrinogen deficiency in amniotic fluid embolism, [Reid & others] *227
  fibrinogen deficiency in erythroblastosis fetalis, [Rice] 277—ab
FIBRINOGEN: See Fibrin
FIBRINOLYSIN
  Streptococcic (streptokinase): See Streptokinase-Streptodornase
FIBROPLASIA, Retrolental: See Lens, Crystalline
FIBROSARCOMA
  of bones, treatment, [McCarroll] *299
  primary, of skin, [Mopper] *570
FIBROSIS: See Endocardium; Pancreas
FIBROSITIS: See Myositis, rheumatoid
FIEDLER'S Myocarditis: See Myocarditis
FIGHTING: See Boxing
FILARIASIS
  onchocercosis, effect of hetrazan in, Mexico, *1360*
FILATOV'S Therapy: See Placenta
FILMS: See Moving Pictures
FILTERS, Cigarette: See Tobacco
FINGERNAILS: See Nails
FINGERS: See also Hand; Nails; Toes
  abrasion in swimming pool, granuloma after, [Rees & Bennett] *1606
  avulsion of dorsum of thumb, 199
  lesions, nylon prosthesis in, [MacAusland] 188—ab
  muscle relaxation of, on steering wheel in driver going to sleep, 374
  radiation burns from x-ray diffraction apparatus simulating infections, [Watrous & others] *513
  sinus between, filled with hair; barbers' disease, [Waris] 1466—ab
FIRE: See also Burns
  Fire and Your Hospital (film review), 477
FIREWORKS
  transportation of, Fourth of July accidents, statistics for 1903-1946, [Lull] 168; (federal legislation on transportation) 1244
FIRST AID: See also Emergency Medical Service
  station (mobile) to protect industrial plants, California, (picture) 1450
  station recommended by U. S. Civil Defense Administration, (picture) 179
FISH
  lens protein injection for cataract dangerous, [Breinin] *698; (National Research Council report) *707; 710—E
  Overland Brand Dietetic Pack White Meat Tuna, 45
FISH SKIN: See Ichthyosis
FISKE Fund Award: See Prizes
FISTULA
  arteriovenous pulmonary, fatal hemoptysis from, [Israel & Gosfield] *40
  arteriovenous, whistling noise over temporal area synchronous with heart beat, 774
  bronchopleural, infected, trypsin injection for, [Innerfield & others] *597
  Sacrococcygeal: See Pilonidal Sinus
  thoracic duct, after thoracoplasty, [Cummins] 1478—ab
  tracheoesophageal, closure of, [Grow & Neerken] *1614
FITS: See Convulsions
FLASHES: See Flushes
FLEAS
  plague-infected, 538
FLIES
  control, effect on diarrheal disease, [Lindsay] 1566—ab
  fruit, poliomyelitis possibly carried by, [Leeming] 77—C; [Garb] 757—C
  simulium, transmit pinta, Mexico, 180
FLIGHT: See Aviation
FLOORING
  of shower rooms, incorporate copper sulfate to prevent mycosis of feet? 292
FLOUR: See also Bread
  "improved," allergic response to, [Sheldon] 1179—ab
  "improved," syndrome of eczema, mental depression and anorexia from, London. 353; [Pollock] 1066—C
  nasal irritation from, in baker, 1677
'FLU": See Influenza
FLUIDS: See also Milk; Water
  balance, and loss of, in burns, [Reiss & others] *1309; (chart) *1312
  balance, course on, Washington, 538
  Body: See also Cerebrospinal Fluid; Saliva
  body, balance in children; extracellular fluid volume, 18—ab
  body, heparin determination in, Paris, 1651
  by mouth, forbidden "after midnight," unnecessary routine orders, [Harbison] *397
  disturbances in prostatism, [Lapides] *1305
  infusion, growth of bacteria in, [Michaels] *1482—ab*
  Parenteral: See Injections
FLUKES: See Schistosomiasis
FLUORESCEIN
  solution, treatment of methylrosaniline poisoning, (correction), [Hosford & Smith] 748
FLUORESCENT Lamp; Lighting: See Lighting
FLUORINE
  climate and endemic dental fluorosis, [Galagan] 1566—ab
  excessive fluorides in well water on farm, *how to reduce, 104*
  Fluoridation of Water Supply: See Water supply
  fluoride analysis, laboratory courses in, 251; 1648
  fluorosis in Sudan, [Smith] 1179—ab
  treatment with fluoride for children, Mich., *1438*
FLUSHES
  hot flashes long after menopause, 1495
  scanty menstruation and hot flashes at 27, 1586
FLUSHING
  role of emotions in dermatoses, [Frumess] *1419
FLY: See Flies
FLYERS; Flying: See Aviation
FOCAL INFECTION: See Infection
FOG
  London fogs: demand for action, 353
FOILLE
  blood phenol level after topical application, [Ruedemann & Deichmann] *506
FOIX-Schilder Disease: See Schilder-Foix Disease
FOOD: See also Bread; Diet; Fish; Milk; Nutrition; Vegetables
  A.M.A. Council on Foods and Nutrition: See American Medical Association
  allergy, cause of sinusitis, 1676
  allergy: crossed allergies, Italy, 181
  allergy in duodenal ulcer, 104
  allergy, skin tests in atopic disease, [Engelsher] 355—C
  Appetite for: See Appetite
  Canned: See Infants, feeding
  cholesterol relation to, and atherosclerosis, Norway, 73
  coloring, cancerogenic effect, [Wingler] 1489—ab
  Containers: See Cooking and Eating Utensils
  cooked in softened water affect nutritive value? 1498
  Deficiency: See Nutrition
  disinfection of "perishable materials" against tapeworm ova, 1396
  Energy Values: See Calories
FOOD—Continued
  Food as Children See It (film review), 648
  fruit of pine tree used as, Brazil, 470
  Garbage: See under Refuse
  importance in preventive medicine, article by C. A. Elvehjem, 1537—E
  Infants: See Infants, feeding
  Ingestion of: See Indigestion
  Lack of: See Starvation
  poisoning, salmonella Montevideo infection from powdered egg yolk, [Southard & others] *1432
  protection, first National Conference on, 1642
  rationing, social aspect of, Israel, 1256
  U. S. Food and Drug Administration, (factory inspection approved by A.M.A.) [Lull] 169; (Mr. McManus retires; Dr. Milstead and Mr. Pearson appointed) 623
  Vitamins in: See Vitamins
FOOT: See also Heel; Orthopedics; Shoes; Toes
  Athlete's: See Dermatophytosis
  burned foot, [London] 767—ab
  stepping on rusty nail: should tetanus antitoxin be given 5 days later? 200
  surgery, excise plantar condyles for plantar warts, [DuVries] *1202
  swelling of feet in hot weather, 880
  Warts on: See Verruca, plantar
  ways to prevent fungus infections, 292
FOOTBALL
  bladder inserted in artificial limb then inflated for lymphostatic verrucosis of amputation stump, [Loewenthal] 475—C
FOOTWEAR: See Hosiery; Shoes
FORCEPS
  Delivery: See Labor
FORD Foundation: See Foundations
FOREIGN BODIES
  broken denture in esophagus causes middle lobe syndrome, [Valle & Cloutier] *812
  broken needle in tonsillar fossa, 984
  gastrointestinal perforation by, erroneous x-ray diagnosis, [Kübler] 1481—ab
  glass in intestinal tract, 1499
  in eye, [Lynch] 189—ab
  rectum lacerated by enema tips, thermometers, suppositories, [Turell] *136
  severe perforating wound of head and neck from blunt object (lead pipe), [Black & McClintock] *519
  structural changes around nails and screws in bones, [Collins] 652—ab
  surgeon's helper: powerful patented *magnet* to locate, [Duffy] 1067—C
FOREIGN COUNTRIES: See Europe; United Nations; under names of specific countries as Formosa; India; Korea
  Medical Schools in: See Schools, Medical
  Physicians from: See Physicians, foreign
FORENSIC Medicine: See Medical Jurisprudence
FORMOSA
  alopecia leprotica: custom of shaving scalp of newborn, [Clevel & Pruitt] *573
FOSSA
  Supraclavicular: See Supraclavicular Fossa
FOUNDATIONS
  American-Korean Foundation, [Rusk] 724; (diathermy machines for) 1350
  American Medical Education Foundation, [Bauer] 723; (report) 742; (list of donors *giving $1,000* or more) 743; (A.M.A. resolution on) 844; ($10,000 gift of Woman's Auxiliary to) 855; (A.M.A. motion of appreciation to the chairman, Dr. Henderson) 856; (2nd annual report reports progress) 1044—E; (correction) 1443
  American Psychiatric Association, 1155
  American Urological Research Foundation, Inc., 1057
  Bertner, award to Dr. Huggins, 857
  Childs (Jane Coffin) Memorial Fund, 1441
  Ford, (grant to *Israel*) *1543*
  Georgia Warm Springs, plans expansion, 944
  Interamerican Foundation for Postgraduate Medical Education, 538
  Kellogg (W. K.), (scholarship awarded, Chile) 547; (grant for geriatrics study) 858
  Kresge, grant to National Multiple Sclerosis Society, 1723
  Levinson (Julian D.) gift to Hektoen Institute, 944
  Life Insurance Medical Research, (fellowships available), 1641
  Lovelace, for Medical Education and Research, (picture) 536
  Lucas Sierra, meeting of, Chile, 865
  medical, establishment of, federal bills on, A.M.A. attitude on, 1047
  Myasthenia Gravis, 617
  National Foundation for Infantile Paralysis, (their view on use of gamma globulin, A.M.A. Committee report states) 832; (A.M.A. resolutions on gamma globulin) 849; (5 year March of Dimes grant to U. of Pennsylvania) 1055; (grant to medical social workers) 1155; (March of Dimes grants to various institutions) 1250; 1348; (fellowships for psychiatrists offered) 1441; (March of Dimes establishes new record) 1641

FOUNDATIONS—Continued
  National Fund for Medical Education, (medical school crisis discussed by Pittsburgh business leaders) 746; (address of Dr. Lahey at A.M.A. meeting) 853
  National Science Foundation (fellowships) 258; (grant to Conference on Growth) 618; (new headquarters) 623; (will receive applications for grants for travel to Pacific Science Congress) 1542
  Nutrition Foundation (Goldberger Award), 42; 49—E
  Passano (award to Dr. Enders), 536
  Picker (James), grants for research available, 342
  Protein Foundation, Inc. (formed), 858
  Retina Foundation, (service fellowship) 1641
  Rockefeller (expands virus studies) 339; (grants to American University of Beirut and to Indian Council of Medical Research) 748; (subsequent careers of applicants for research fellowships) [Bowen] *693; (grant for study of psychiatric hospital design), 1642
  Runyon (Damon) Memorial Fund for Cancer Research, Inc., 1056; 1721
  Tucker (Gertrude Chandler) Memorial Fund, Ohio, 339
  Vitamin (grants), 1440
  Wangensteen Surgical, established, 1347
  Wenner-Gren Foundation Prize of New York Academy of Sciences, 948
FOURTH OF JULY
  accidents, statistics on (1903-1946), letter from Dr. Lull on transportation of fireworks, 168; (federal legislation on transportation) 1244
FOWLER'S Solution: See Potassium arsenite
FOXES
  rabid, in 2 townships, Ill., 247
FRACTURES: See also Orthopedics; under names of specific bones
  Car Window Fractures: See Elbow
  Colles: See Radius
  dislocation (obstetric) of pelvis, [Urist] *127
  recording oscillometer in orthopedic practice, [Chandler & Dickinson] *901
  stress; of ribs in successive pregnancies, [Marsh] *26
  treatment, ambulatory, 5—ab
  treatment, diathermy contraindicated over or near bone plates, 1678
  treatment, high caloric fat emulsion for total feeding, [Kuhl] 1468—ab
  treatment, medullary nailing, [Küntscher] 1075—ab
  treatment, skeletal traction in, 25—ab
FRAUDS: See Impostors
FRECKLES (lentigo)
  treatment, monobenzyl ether of hydroquinone (benoquin), [Lerner & Fitzpatrick] *577
FREEDMAN Lecture: See Lectures
FREEDOM
  in Medicine: See Fellowships
  under God, A.M.A. resolution on, 843
FREEZING: See Frostbite
FREIDMAN, HENRY M., awarded Superior Service Award, 1161
FREUD Anniversary Lecture: See Lectures
FRIDERICHSEN-Waterhouse Syndrome: See Waterhouse
FRIEDMAN Test: See Pregnancy diagnosis
FRIEDMANN, FRIEDRICH FRANZ, death, 1250
FROSTBITE
  cold injury in Korean War, 1448
  treatment, heparin and sympathetic nerve block in, [Kulhia] 551—C
FRUIT: See also Banana; Pineapple
  citrus groves, parathion poisoning in, [Williams] 1071—ab
  Flies: See Flies
  of pine tree used as food, Brazil, 470
FULBRIGHT AWARDS
  offered, 747
FUMAGILLIN (Fumidil; H-3)
  as an amebacide, [McHardy] 1567—ab
  name accepted by Council, 709
FUMIDIL: See Fumagillin
FUMIGATION
  devices for insecticides, health problems of (Committee report) *1232; 1238—E
"FUNCTIONAL DISORDERS"
  treatment, [Watts & Wilbur] *1192
FUNDS: See Foundations; Physicians, memorial
FUNERAL Directors: See Undertakers
FUNGI: See also Mycology
  aureomycin and chloramphenicol effect on, [McGovern] 973—ab
  candicidin action on, [Kligman] 1565—ab
  fungistatic activity of parabens, [Siegel] 1733—ab
  Infection with: See Blastomycosis; Chromoblastomycosis; Mycosis
FUSOSPIROCHETOSIS: See Vincent's Infection

G

GBH: See Benzene Hexachloride, gamma
GI Insurance: See Insurance
GALLBLADDER: See also Bile Ducts; Biliary Tract
  dyes effect on blood chemistry, (reply), [Lim] 296
GALLBLADDER—Continued
  inflammation, antibiotics for, [Zaslow] *1683
  motility, reciprocal relation between Oddi's sphincter; effect of progesterone, [Adlercreutz] 1275—ab
  roentgen study, telepaque and pseudoalbuminuria, [Seedorf & others] *1332
  roentgen study, visualize common duct during, [Sachs] 1660—ab
  surgery, postoperative stricture of biliary tract, [Pierce] 1472—ab
  surgical diseases, Ecuador, 180
GAMBLE-BROWN Test: See Brown-Gamble Test
GAMMA
  Benzene Hexachloride: See Benzene Hexachloride, gamma
  Globulin: See Globulin
GAMOPHEN: See Hexachlorophene
GANGLION
  stellate, block for acute focal cerebral infarcts, [Gilbert & de Takats] 870—C
GANGRENE: See also Penis
  after intra-arterial transfusion, [Collins] 871—C; (reply) [Blakemore & others] 871—C
  diabetic, trypsin injection for, [Innerfield & others] *597
GANTRISIN: See Sulfisoxazole
GARRAHAN, JUAN P., professor of pediatrics dismissed, Buenos Aires, 752
GAS: See under names of specific gases as Oxygen
  Embolism: See Embolism, air
  in Blood: See Blood gases
GASTRECTOMY: See Stomach surgery
GASTRIC: See Stomach
  Juice: See Stomach secretion
  Ulcer: See Peptic Ulcer
GASTROENTEROLOGY
  American Gastroenterological Ass'n. committee report on surgical aspects of peptic ulcer, 1236—E
GASTROENTERITIS: See also Food poisoning
  paracolon and non-lactose fermenting enteric bacteria, [Hare] 1375—ab
GASTROINTESTINAL TRACT: See also Abdomen; Digestive System; Duodenum; Indigestion; Intestines; Stomach
  Allergy: See Food allergy
  disease, acrodermatitis enteropathica, treated with diodoquin, [Dillaha & others] *509; (correction) 1643
  disease, secretin therapy, [Labò] 769—ab
  hemorrhage of undetermined origin, immediate exploratory laparotomy during active bleeding, [Bockus & others] *1228
  perforation by foreign bodies, x-ray diagnosis, [Kübler] 1481—ab
  roentgen study, nonmalignant changes in elderly, [Pirky] 1568—ab
  tumors, systematic detection center for, [Albot] 1485—ab
GAUZE
  tantalum, in presence of infection, [Koontz] 1557—ab
  tantalum, to repair hernias, 775
GAVEL
  of mastodon ivory presented to Philadelphia County Medical Society, 1055
GAY FORMULA
  hemorrhagic encephalopathy from, [Prickman & Millikan] *1711
GELATIN
  as plasma expanders, [Hartman & Behrmann] *1117
GENERAL PARESIS: See Dementia Paralytica
GENERAL PRACTICE; Practitioner: See Medicine, practice; Physicians, practicing
GENERATORS: See Electric generators
GENETICS: See also Heredity
  foreign journal on: *Journal de Genetique Humaine*, 950
GENITALS: See also Genitourinary System; Gonads; Penis; Vagina
  e before and after
  anckson] 1573—ab
  tuberculosis, isoniazid for, [Barns] 1482—ab
GENITHION: See Parathion
GENITOURINARY SYSTEM
  complications of pelvic fractures, [Newland] *1515
  tuberculosis, nonsurgical treatment, [Cibert] 1077—ab
GENTIAN VIOLET: See Methylrosaniline
GEOGRAPHY
  disease and, [Karsner] 355—C
GEORGETOWN UNIVERSITY
  School of Medicine, Dr. Forster dean, 1152
GEORGIA Warm Springs Foundation: See Foundations
GERIATRICS: See Old Age
GERMAN MEASLES: See Rubella
GERMICIDES: See Antiseptics; Disinfection; Sterilization, Bacterial
GERMS: See Bacteria
GERONTOLOGY: See Old Age
GESTATION: See Pregnancy
GESTOSIS: See Pregnancy, toxemia of
GIDDINESS: See Vertigo
GIFTS: See Donations (cross reference)
GIRLS: See Adolescence
GLANDS: See under names of specific glands
  of Internal Secretion: See Endocrinology
  Sex: See Gonads
GLANDULAR FEVER: See Mononucleosis, Infectious
GLASS
  eruption from working with fiberglass, 1290
  in intestinal tract, 1499
  vs. waxed cardboard sputum containers, 107
GLASSES: See also Lenses
  New Eyes for the Needy, Inc., 174
GLAUCOMA
  course in, New York, 59
  Glaucoma: What the General Practitioner Should Know, (film review) 272
  secondary, from fish lens protein injection for cataract, [Breinin] *698
  secondary, treatment, 655
  surgery in, Paris, 868
  treatment, bethanechol chloride, [Frisch] 1462—ab
  treatment, goniotomy, [Barkan] 1462—ab
  treatment, trypsin injection [Innerfield & others] *597
GLOBULIN
  gamma, A.M.A. resolution on, 849
  gamma convalescent, fails to protect against homologous serum hepatitis, [Drake & others] *690
  gamma, convalescent rubella, for prophylaxis, [Anderson] 769—ab
  gamma, distribution and use, statement by National Research Council, *648
  gamma, distribution by USPHS, 50—E; 68
  gamma, given in pregnancy to prevent congenital defects from rubella, [Miralbéll-Andreu] 1486—ab
  gamma, in viral hepatitis, 612—E
  gamma, supplies of, A.M.A. Committee report, 832
  gamma, to prevent poliomyelitis from National Gamma Globulin Evaluation Center, 1648
  gamma, treatment of infectious mononucleosis, [Freund] 77—C
GLOMERULI: See Kidneys, glomeruli
GLOMERULONEPHRITIS: See Nephritis, glomerular
GLOSSOPHARYNGEAL Neuralgia: See Neuralgia
GLUCOSE
  fluid and electrolyte balance in burns, [Reiss & others] *1309
  fluid and electrolyte disturbances in prostatism, [Lapides] *1305
  give sodium chloride solution, citrated blood and glucose through same tube? 296
  in vegetable juices, London, 1650
  solution, intravenously, 881
  solution intravenously, fatal reaction, [O'Hare] 1660—ab
  tolerance test, to differentiate types of hyperglycemia, 376
  treatment of delirium tremens, [Smith] *384
GLUTAMIC ACID: See Acid
GLUTEAL REGION: See Buttocks
GLYCEMIA: See Blood sugar; Diabetes Mellitus
GLYCERIN
  erythrocytes dehydrated with, and stored at subzero temperature, [Brown] 1264—ab
GLYCOCYAMINE
  treatment plus betaine in poliomyelitis, [Watkins] 1471—ab
GLYCOPROTEINS
  in Blood: See Blood
GLYCOSURIA: See also Diabetes Mellitus
  after treatment with PAS, [Robel] 1488—ab
GLYCYRRHIZA (licorice)
  effects on salt and water metabolism, [Card] 1383—ab
  treatment, International Society discuss, 74
  treatment of gastric ulcer, Sweden, 1362
  treatment plus cortisone in Addison's and Simmonds' disease, [Borst] 1383—ab
GOITER: See also Goiter, Toxic; Hyperthyroidism
  benign solitary adenoma of thyroid, 1583
  nontoxic, relation to carcinoma, [Williams] 92—ab
  survey in El Salvador, 1442
  treatment: thiouracil; 6-ethylthiouracil; 6-propylthiouracil, and thiobarbital, [Solomon & others] *201
GOITER, TOXIC
  treatment, modified methimazole, [Doniach] 1483—ab
  treatment, radioactive iodine, [Seed] 89—ab; (in Paris) 1731
GOLD
  Compound: See Aurothioglycanide
  radioactive, and hypoplasia of bone marrow, [Hahn] 474—C
  radioactive, syringe shield used in injecting, [Getzoff & others] *1431
  treatment of rheumatoid arthritis, [Nugent] 767—ab; (with Lauron) [Batterman] *1013 [Brown] 1478—ab
GOLDBERGER Award: See Prizes
GOLF
  tournament, Ohio, 617
GONADS: See also Ovary; Testes
  hormones cause of cardiac hypertrophy, [von Metzler] 93—ab
GONIOTOMY
  present status, [Barkan] 1462—ab

GONORRHEA
  control women contacts; penicillin treatment, [Lee] 364—ab
  incidence: number of population who contract, 295
  treatment, penicillin alone and combined with sulfonamide, [Horne] 94—ab
  treatment, resistant to penicillin? 566
  urethritis (acute), trypsin injection for, [Innerfield & others] *597
GOODWILL Industries Prize: See Prizes
GORDON, EDDIE M., to head National Leprosarium, 1162
GOUGH, L. K., commander of American Legion, address at New York meeting, 852; (A.M.A. resolution on) 855
GOUT
  acute, trypsin injection for, [Innerfield & others] *597
  complications: paraplegia from sodium urate deposits in spinal canal, [Koskoff & others] *37
  painful toe, 1084
  Primer on Rheumatic Diseases, *524
  treatment: rest, colchicine, cortisone, corticotropin, phenylbutazone, hydrocortisone, diet, probenecid, [Smyth] *1106
GOVERNMENT: See also United States
  functions of, 304—ab
  Hospitals: See Hospitals
GRADUATE
  Courses: See Education, Medical
  Fellowships: See Fellowships
GRADUATES: See also Interns and Internships; Residents and Residencies
  birth rate among college graduates, 1155
  Foreign: See Physicians, foreign
  licensure failures by graduates of existing approved schools, *422; *423
  of approved medical schools and others registered, 1922-1952, *432; *434
  of Canadian medical schools examined for licensure in U. S., 1952, *421
  of schools of osteopathy registered, 1948-1952, *433; *434; *435
  of unapproved medical schools registered, 1948-1952, *433; *435
GRAFT: See Aorta; Arteries; Blood Vessels; Bones; Muscles; Placenta; Skin; Veins
GRAIN: See Flour
GRAND MAL: See Epilepsy
GRANTS for Research: See Fellowships; Foundations
GRANULAR Lids: See Trachoma
GRANULOCYTOPENIA: See Agranulocytosis
GRANULOMA
  eosinophilic, of vulva, [McKay] 1378—ab
  Malignum: See Hodgkin's Disease
  pouch technic to study effect of hydrocortisone on tissue resistance to injury, [Selye] *1207
  prostatitis confused with cancer, [Thompson] 1561—ab
  swimming pool abrasion cause of, [Rees & Bennett] *1606
  Venereum: See Lymphogranuloma venereal
GRAVES' Disease: See Goiter, Toxic
GREAT BRITAIN: See also British; Royal College
  antibiotic production in, 1650
  cobalt sixty beam therapy unit presented by Canada to, 72
  diet under survey, 261
  drug bill; how to reduce, 1650
GRENZ Rays: See Roentgen Therapy
GRIEVANCE Committee: See Societies, Medical
GRIP: See Influenza
  Devil's: See Pleurodynia, Epidemic
GROUP
  for Advancement of Psychiatry, Committee on Psychiatry in Industry of, 240—E
  Hospital Insurance: See Hospitals, expense insurance
GROWTH
  arrest from epiphysial disk, 566
  Conference on, grant from National Science Foundation, 618
GUAIAC
  test on stool specimen in annual physical examination, (replies) [Hulett] 882
  test vs. benzidine test to detect occult blood in feces, [Mendeloff] *798
GUDAKUNST Memorial Lecture: See Lectures
GUILLAIN-BARRÉ SYNDROME
  in differential diagnosis of poliomyelitis, [Grulee] *1587
  treatment, corticotropin (ACTH) intravenously, [Newey & Lubin] *137; [Blood & others] *139
GUMS: See Jaws; Teeth
GUNSHOT Wound: See Wounds
GYNECOLOGY
  Italian Society for, meeting, Sept. 21-24, 950
  surgical risk in gynecologic patients with heart impairment, Brazil, 259
GY-PHENE: See Toxaphene

H

H-3: See Fumagillin
HETP: See Hexastigmium
HPC
  treatment plus aspirin in rheumatic fever, [Clark] 1265—ab; (correction) 1724
HAIR: See also Shaving
  care of; how often should it be shampooed? 1496
  excessive, diphenylhydantoin cause of, 295
  Loss of: See Alopecia
  surgeons fail to cover their scalp hair at operations, [Prioleau] 477—C
HALL OF FAME
  Methodist, in philanthropy, physicians honored in, 1057
HALL, SAMUEL PIKE, alleged physician who uses name of sought as impostor, 1344
HALLUCINATIONS
  chronic, after cortisone, Paris, 263
HAMILTON, EDWIN S., statement before Congress on extension of "Doctor-Draft Law," 165—E; 166
HAND: See also Fingers; Nails
  disinfectants, study of 3 new types, [Massone] 1484—ab
  Left Handedness: See Left Handedness
  mechanical air drying of, after preoperative scrubbing, [Walker] 974—ab
  muscle relaxation of, on steering wheel in driver going to sleep, 374
  radioactive contamination, soap powder-wood flour mixture to remove, [Gregory] 365—ab
  shoulder syndrome after myocardial infarction, cortisone in, [Russek] 1460—ab
  shoulder syndrome, Primer on Rheumatic Diseases, *529
HANDICAPPED: See also Blindness; Crippled; Disability
  aid to, federal bills on, A.M.A. attitude on, 1050
  orthopedic handicaps, care of children with, 463
  psychology of, Belgium, 350
  Rehabilitation: See Rehabilitation
HANSEN'S Disease: See Leprosy
HAPTENS
  Rh: See Rh Factor
HARRISON NARCOTIC ACT
  A.M.A. resolution on amending, to allow dispensing codeine mixtures on oral prescriptions, 849
  registration under, 613—E
  responsibilities of physicians under, 1634—E
HARVEY Lecture: See Lectures
HARVEY, WILLIAM
  commemoration of 357th anniversary of death, London, 262
HASHIMOTO'S DISEASE: See Thyroid
HASHISH: See Cannabis Sativa
HAWLEY, PAUL R.
  A.M.A. resolution on his interview by *U. S. News and World Report,* 839; 841
  A.M.A. resolution on his publicizing ghost surgery, fee splitting and unnecessary operations, 839; 840; 841; 842
HAY FEVER
  atopic dermatitis caused by inhalant antigens, [Diamond] 1465—ab
  automobile accidents due to allergy, 296
  treatment, circulating eosinophils and specific desensitization, [Dragsted] 1475—ab
HEAD: See also Acrocephaly; Brain; Cranium; Face; Microcephaly; Neck; Scalp
  Bald: See Alopecia
  Enlargement: See Hydrocephalus
  injuries, [Lipscomb] *590
  injuries, grand mal seizures in patients over 35, [Berlin] *794
  injuries: severe perforating wound from blunt object (lead pipe), [Black & McClintock] *519
HEADACHE: See also Migraine; Medicolegal Abstracts at end of letter M
  diagnostic problems in; also various types, [Emblem] 370—ab
  hypertensive, thiocyanate intravenously for, [Saint-Pierre & others] *493
  of brain tumor, 787—ab
  powder ("yum"), benign ulcer of esophagus with chronic acetanilid poisoning, [Wolfson & Greenberg] *910
HEALING: See Wounds
HEALTH: See also Disease; Hygiene; Sanitation
  A.M.A. contributions to, new transcription series, 459
  American Public Health Ass'n., 108; 880
  aspects of survival, Calif., 744
  Center: See also Medical Center
  center dedicated at Chapel Hill, N. C., 1154
  center, direct medical service plan in N. Y. hotel industry, [Guidotti] *788
  center (public), funds for expanding at Soissons, France, 1543
  commissioner (deputy): Dr. Larimore, N. Y., 1439
  conference at Lake Placid, N. Y., 463
  council, National Health Council, Dr. Dent president, La., 1540
  councils, "Directory of Community Health Planning Councils," 251
  department certifies tourists resorts, Mich., 462
  Department of Public Health and Welfare, reorganized, Mexico, 958
  department of Territory of Hawaii, Honolulu, annual report, 947
  Education, A.M.A. Bureau of: See American Medical Association
HEALTH—Continued
  education in England, Central Council for, 1443
  education (popular), criticized, Sweden, 959
  education workshops, Pa., 537
  Examination: See Physical Examination.
  Exhibits: See Health museum
  federal aid to state and local governments, A.M.A. views on S. 106 and S. 1514, 54
  field, relation with nonprofessional groups in, 740
  Industrial: See Industrial Health
  Institute of Public Health and Tropical Diseases, Mexico, 1359
  Insurance: See Insurance, sickness
  International Health Organization: See World Health Organization
  Mental: See Mental Health
  museum at Lankenau Hospital, Pa., 859
  museum, Cleveland, (medical stamp exhibit), 464; 946; (popular health television show) 1541; 1640; [Martin] *1626
  museum, organizing, [Martin] *1626
  National Health Service (England): See National Health Service
  National Institutes of Health, Clinical Center, newly completed, (picture), 623
  obesity and, 1201—ab
  officers, institute for, Ill., 744
  Personal Health for Girls, (film review), 648
  Plans: See Medical Service Plans
  problems (current) in Korea, [Rusk] 476—C
  problems in Alaska, grant to investigate, Pa., 1248
  problems of vaporizing and fumigating devices for insecticides, (Committee report) *1232; 1238—E
  public, Dewees scholarship, Pa., 1348
  public health courses, Israel, 1257
  public health problems in syphilis control, [Bauer] *300
  public health problems, Inter-Scandinavian 549
  Research, Inc., formed by New York State, 1721
  Rural: See Rural Communities
  Sciences Building at U. of Washington (new), (picture), 340
  Service: See also Medical Service; Medical Service Plans
  services, local, 1450
  Statistics: See Vital Statistics
  student health services, report by Royal College of Physicians, 262
  student health, training program for college health physicians, [Sander] 756—C
  Supplies: See Medical Supplies
  television shows (popular) Cleveland, 1541; 1640
  U. S. Department of: See United States
  U. S. Department of Health, Education and Welfare: See United States
  U.S.P.H.S., (distribution of gamma globulin) 50—E; 68; (laboratory diagnosis of rabies) 68; (study of health of chromate workers) 270; (clinical fellowships in rehabilitation) 349; (report on increased enrollment in nursing schools) 349; (service discontinued in Cleveland Hospital) 623; (history of industrial dermatology) 923—E; (federal grants and fellowships) 1062; (new international vaccination certificates) 1161; (radioactive cortisone available) 1357; (evaluation of gamma globulin to prevent poliomyelitis) 1648
  Units: See Health Center; Medical Center
HEARING
  Aids: See Hearing Aids *following*
  American Hearing Society, to move headquarters, Wis., 1641
  impairments in children, [Kinney] 1374—ab
  International Congress of Audiology, 252
  Loss of: See Deafness
  National Hearing Week, 62
HEARING AIDS
  Audiovox, Model 70, 1715
  Beltone Mono-Pac, models Lyric and Rhapsody, 1235
  Maico "Top Secret" Model L, 47
  Otarion, Model H-1, Custom "5", 821
  Telex, Model 953, 821
  Zenith, Model Regent, 821
HEART: See also Arteries, coronary; Cardiovascular System; Endocardium; Pericardium
  American Heart Association (booklet) 341; (fellowship awards) 538; (fellowships available) 1441
  Angiocardiography: See Cardiovascular System
  Anomalies: See also Ductus Arteriosus, patent; Heart disease (congenital)
  anomalies, Blalock-Taussig operation in morbus caeruleus, [Campbell] 367—ab
  anomalies, congenital diverticulum of left ventricle, [Potts] 191—ab
  anomalies, DIAGNOSIS OF CONGENITAL CARDIAC DEFECTS IN GENERAL PRACTICE, gratis, 341
  anomalies, tetralogy of Fallot: diagnosis; surgical treatment, [Bosher] 280—ab
  anomalies, trilogy of Fallot, differentiated from tetralogy of Fallot, Italy, 866
  anomalies (various) with bilateral ductus arteriosus, [Kelsey] 760—ab

HEART—Continued
  arrest during otolaryngological operations, [Hosler] 1556—ab
  arrest, glossopharyngeal neuralgia with, [Richburg & Kern] *703
  arrest, intra-aortic and intracardiac transfusions in, [Stephenson & Hinton] *500
  Arrhythmia: See Arrhythmia
  Auricular Fibrillation: See Auricular Fibrillation
  auricular pressure (left), method for measuring, Paris, 868
  ballistocardiographic study of normal persons, [Scarborough] 478—ab
  ballistocardiography in mitral stenosis, Italian Society discusses, 866
  beat, whistling noise over temporal area synchronous with, 774
  block (bundle branch), prognosis for, Sweden, 959
  blood withdrawn from, introduce catheter into right atrium, [Provenzale] 1384—ab
  catheterization, [Fowler] 1169—ab
  catheterization, subendocardial trauma produced by, [Sancetta] 1265—ab
  catheterization (venous) to select patients for commissurotomy, [Chapman] 1176—ab
  danger to, of competitive athletics for high school students, 1495
  Decompensation: See Heart insufficiency
  decortication, [Skinner & Farr] *234
  dextrocardia, Kartagener's syndrome, 533—E
  Disease: See also Cardiovascular Disease; Endocarditis; Pericarditis
  disease, camps for children with, Ill., 462
  disease, cocarboxylase effect on urinary excretion of riboflavin in, Italy, 1452
  Disease (Congenital): See also Heart anomalies
  disease (congenital), life expectancy of children with, [MacMahon] 1477—ab
  Disease (coronary): See Arteries, coronary
  disease discovered by mass radiography, Norway, 549
  disease discovered on chest microfilms, [Slattery] *1595
  disease, first Blakeslee award for outstanding scientific reporting in, 342; (contest open) 1542
  Disease, Hypertensive: See Blood Pressure, High
  disease, iatrogenic, 457—E
  disease, in New England, prevalence of various types, 1925 vs. 1950, [White] *303
  Disease (pulmonary) (cor pulmonale): See Heart hypertrophy
  disease (rheumatic), electrocardiograms in patients with, [Grossi] 98—ab
  disease (rheumatic) in pregnancy, [Gorenberg] 278—ab
  disease, surgical risk in gynecologic patients with, Brazil, 259
  electrocard.ogram changes during angiocardiography, [Angelino] 1077—ab
  electrocardiogram, delta wave in, 105
  electrocardiogram in rheumatic heart disease, [Grossi] 98—ab
  electrocardiogram in toxic symptoms in antabuse-alcohol reaction, [Markham & Hoff] *1597
  electrocardiogram in trichinosis, [Kushlan] *221
  electrocardiogram, returns to normal: myocardial infarction, 1396
  Emphysema (cor pulmonale): See Heart hypertrophy
  Enlargement: See Heart hypertrophy
  Failure: See Heart insufficiency
  hypertrophy, cor pulmonale in New England, 1925 vs. 1950, [White] *303
  hypertrophy, hormonal cause, [von Metzler] 93—ab
  hypertrophy, mediastinal lipoma simulates, [Gottlieb & others] *908
  in chronic pulmonary disease, [Fulton] 979—ab
  in rheumatoid arthritis, [Sokoloff] 1656—ab
  Infarction: See Myocardium
  Inflammation: See also Endocarditis; Pericarditis
  inflammation (rheumatic), corticotropin and cortisone in, [van Creveld] 1179—ab
  inflammation (rheumatic protracted) in children, cortisone and corticotropin for, [Taran] 1069—ab
  insufficiency, decompensation with pleural effusion, gaseous nitrogen elimination in, [Boothby & others] *1000
  insufficiency, effect of cation exchange resins on congestive failure, [de Soldati] 1279—ab
  insufficiency, effect of hexamethonium on congestive failure, [Kelley] 763—ab
  insufficiency, effect of mersalyl on pulmonary stasis in, [Marquardsen] 1489—ab
  insufficiency, evaluation of diuretics given orally, [Grainer & Gold] *1130
  insufficiency in infants, Paris, 182
  insufficiency, ligate inferior vena cava in decompensation, [Cloetens] 766—ab
  insufficiency, primary failure in infants, [Clément] 193—ab
HEART—Continued
  insufficiency with cirrhosis, packed red blood cells parenterally in, [Calloway & Mowrey] *777
  Italian Society of Cardiology, 866; 1452
  Murmurs: See Heart sounds
  Muscle: See Myocarditis; Myocardium
  Output: See also Blood circulation; Blood volume
  output, negative pressure phase in mechanical respirators, [Maloney & others] *212
  Pain: See Angina Pectoris
  phonocardiography: teaching auscultation by endless loop tape recording, [Geckeler & others] *1335
  problems in industry, W. Va., 1440
  program expanded, Vt., 1055
  Rate: See Bradycardia; Pulse; Tachycardia
  resuscitation, course in, at Western Reserve, 252
  resuscitation especially by massage, drugs, defibrillation, [Leeds] *1409
  Rhythm: See Arrhythmia
  roentgen study in mediastinal lipoma, [Gottlieb & others] *908
  Size: See Heart hypertrophy
  sounds and murmurs, heard at a distance from the chest, [Bean] *1293; *1297
  sounds and murmurs, teaching auscultation by endless loop tape recording, [Geckeler & others] *1335
  surgery, Blalock-Taussig operation in morbus caeruleus, [Campbell] 367—ab
  surgery, cardiopericardiopexy (magnesium silicate spread over surface of myocardium), [Thompson & Plachta] *678
  Surgery, Commissurotomy: See Mitral Valve
  tumors, myxoma with cerebral embolism, [Russell] 286—ab
  Valves: See Aortic Valve; Mitral Valve; Pulmonary Valve
  ventricle, left ventricular overload after closure of patent ductus arteriosus, [Villamil] 1282—ab
  ventricle, rapid administration of blood directly into, in cardiac arrest, [Stephenson & Hinton] *500
  Ventricular Fibrillation: See Ventricular Fibrillation
HEAT: See also Burns; Fire
  power output of diathermy apparatus: thigh test of determining heating efficacy (Council report), *1235
  Prickly: See Miliaria
  Production: See Metabolism, basal
  swelling of feet in hot weather, 880
  Therapeutic Use: See Diathermy; Fever, therapeutic; Ultrasonics
HEBREW UNIVERSITY
  Hadassah Medical School, mission to Israel, Ohio, 589
HEDULIN: See Phenindione
HEEL
  painful, 880
HEKTOEN
  Institute for Medical Research, (receives grant for cardiac research) 462; (Levinson Foundation gift to) 944
  Lecture: See Lectures
HEKTOEN, LUDVIG
  request letters written by, [Stenn] 77—C
HELMINTHIASIS: See Teniasis
HEMAGGLUTINATION: See Agglutinins, cold; Blood groups
HEMANGIOMA
  treatment, irradiation, [Montag] 480—ab
  treatment, plastic surgery, [Brown] 1073—ab
HEMANGIOSARCOMA
  of spleen diagnosed by needle biopsy, [Wachstein] *237
HEMATOCHEZIA: See Feces, blood in
HEMATOLOGY: See Blood
HEMATOMA
  of bladder, complicating pelvic fractures, [Newland] *1515
  of rectus abdominis in pregnancy, [Chalmers] 1571—ab
  Subdural: See Meninges
HEMIPLEGIA
  resulting from pheochromocytoma, [ReMine & others] *808
  treatment, stellate ganglion block for acute focal cerebral infarcts, [Gilbert & de Takats] 870—C
  treatment, transcerebral dielectrolysis, Paris, 182
HEMISPHERECTOMY: See Brain surgery
HEMOCHROMATOSIS
  treatment, phlebotomy, [Houston] 1481—ab
HEMOCONCENTRATION: See Blood concentration
HEMODIALYSIS
  treatment of barbiturate poisoning, 822—E
HEMOGLOBIN: See also Methemoglobinemia
  determinations in pregnancy; use of photoelectric colorimeter, 484
  determination with photoelectric hemoglobinometer; use of voltmeter, (reply to Dr. Duffie), [Remer] 108
HEMOGLOBIOMETRY: See Hemoglobin determination
HEMOLYSIS: See Anemia, hemolytic
  Disease in Newborn: See Erythroblastosis, Fetal
HEMOPERICARDIUM
  with tamponade during anticoagulant therapy of myocardial infarct, [Rose & others] *1221
HEMOPHILIA
  Antihemophilic Plasma (Human): See Antihemophilic Plasma
  assay of antihemophilic factors A and B in, [Soulier] 1385—ab
  diagnosis of, two types differentiated: A and B, Paris, 1552
  etiology: role of Christmas factor, [van Creveld] 1482—ab
  femoral nerve lesion in, [Lyons] 1382—ab
  Primer on Rheumatic Diseases, *530
  treatment, antihemophilic plasma, [Jonas] 1672—ab
HEMOPOIESIS: See Blood formation
HEMOPTYSIS
  fatal, from pulmonary arteriovenous fistula, in hereditary hemorrhagic telangiectasia, [Israel & Gosfield] *40
HEMORRHAGE. See also Diathesis, hemorrhagic; Hemophilia; Purpura; Telangiectasia; under names of specific organs and regions as Brain; Gastrointestinal Tract; Uterus
  Control: See Hemostasis
  hemorrhagic fever, clinical and laboratory study. [Barbero] 760—ab
  Menstrual: See Menstruation
  shock with, intra-arterial and intravenous blood infusion in, [Case & others] *208
  syndrome (fatal) in thoracic surgery, Brazil, 1451
  Thrombopenic: See Purpura, thrombopenic
  with paralysis, hazards of lobotomy, [Freeman] *489
HEMORRHOIDS
  operations for, compared, Denmark, 1163
HEMOSPERMIA: See Spermatozoa
HEMOSTASIS
  transfusions of platelets effect on, [Minor & Burnett] *1225
HEMOTHERAPY: See Blood Transfusion
HEMOTHORAX
  treatment, streptokinase-streptodornase in, after extrapleural pneumothorax, [Miadonna] 97—ab
HEMP
  Indian: See Cannabis Sativa
HENDERSON, ELMER L.
  chairman of American Medical Education Foundation, A.M.A. motion of appreciation to, 856
  death; portrait, 1546
HENOCH-Schönlein Purpura: See Purpura
HEPARIN
  determination in blood and other body fluids, Paris, 1651
  sodium solution, N.N.R., (Walker) 941
  treatment, danger of lumbar sympathetic blocks during, [Hohf & others] *399; [Ruben] 1067—C
  treatment, intradermal injection in phlebitis, [Olivier] 1485—ab
  treatment of angina pectoris, [Levy] 355—C; [Engelberg] 474—C; (reply to Dr. Engelberg), [Binder] 1066—C
  treatment of effort angina, [Rinzler] 1461—ab
  treatment of mesenteric venous thrombosis, [Koller] 99—ab
  treatment of thrombosis and embolism in gynecologic clinic, [Kénig] 194—ab
  treatment in thromboangiitis obliterans of venae centralis retinae, Turkey, 1455
  treatment plus sympathetic nerve block in frostbite, [Kulhia] 551—C
HEPATIC: See Liver
  Artery: See Arteries
  Vein: See Veins
HEPATITIS
  Infectious: See Liver Inflammation
  Toxic Hepatitis: See Liver, toxic hepatitis
HEPATOGRAPHY: See Liver, roentgen study
HERBS
  South American, not proved useful in stimulating human milk supply, 375
HEREDITY: See also Genetics; under names of specific diseases as Diabetes Mellitus
  Heredity and Pre-Natal Development (film review), 965
  of blood groups, [Unger] *1006
  of microcephaly, 1288
HERMAPHRODITISM
  psychic, or transvestism, [Hamburger & others] *391; [Wiedeman] 1167—C; [Ostow] 1552—C
HERNIA; See also Spine, intervertebral disk
  diaphragmatic, anemia associated with, [Kümmerle] 1381—ab
  diaphragmatic, clinical features and treatment, [McGlone & Sawyer] *567
  diaphragmatic, discussed at medical and surgical meeting, Italy, 1164
  diaphragmatic or diaphragmatic eventration and venous thromboses, [Lian] 770—ab
  inguinal, Surgical Repair of Direct Inguinal Hernia with Rectus Sheath Graft (film review) 1262

HERNIA—Continued
  treatment, repair with tantalum gauze, 775; (late results) [Douglas] 96—ab
  treatment, Tantalum Mesh Implant in Large Incisional Hernia (film review), 272
HEROES
  Volunteers to Aid Research: See Research
  War: See Korean War, Heroes
HEROIN: See Morphine, *diacetyl*
HERPANGINA
  [Kravis] 362—ab
  herpetic stomatitis and, [Schlack] 367—ab
HERPES: See also Dermatitis herpetiformis
  herpangina and herpetic stomatitis, [Schlack] 367—ab
  labialis, role of emotions in specific diseases, [Frumess] *1418
  simplex (recurrent), treatment with Yaoi's antirabic vaccine, [Borda] 286—ab
  simplex viruses, cultivation in mammalian cells, [Scherer] 273—ab
  zoster occurrence during cortisone or corticotropin therapy, 1394
  zoster on tongue and palate, [Stepan] 1575—ab
  zoster ophthalmicus after trauma, 1291
  zoster, trypsin injection for, [Innerfield & others] *597
  zoster with facial palsy; herpes zoster oticus, [Lathrop] *20
HETRAZAN: See Diethylcarbamazine
HEXACHLOROPHENE (Gamophen; Germa-medica; Hex-O-San; pHisoHex; Septisol)
  hand disinfectant, [Massone] 1484—ab
  N.N.R., (pHisoHex of Winthrop-Stearns) 332
HEXACIDE: See Benzene Hexachloride, gamma
HEXAD: See Acet-Dia-Mer-Sulfonamides
HEXAMETHONIUM (Bismitrium; Esomid; Methium)
  bromide controlled hypotension in neurosurgery, [James] 768—ab
  bromide (Vegolysen) treatment of hypertension, Israel, 260
  chloride orally in hypertension, [Moyer & others] *1121
  chloride, prolonged controlled hypotension in intracranial hemorrhages, [Schönbauer] 1180—ab
  effect on congestive heart failure, [Kelley] 763—ab
  treatment compared with dibenzyline in hypertension, [Miller] 1375—ab
  treatment of hypertension, (Denmark) 1163; [Moyer] 1370—ab; (malignant type) [Sokolow] 1465—ab; [Ronnov-Jensen] 1672—ab
  treatment of hypertension vs. hydralazine, acute psychosis complicating; [Moser & others] *1329
  treatment plus hydralazine in diastolic hypertension, [Romney] 1734—ab
  treatment plus procaine amide in controlled hypotension, [Mason] 282—ab
HEXASTIGMIUM (HETP)
  Committee report on names for pesticides, *820
HEXICIDUM: See Benzene Hexachloride, gamma
HEXOBARBITAL (Evipan)
  succinylcholine iodide in electroshock therapy, [Holmberg] 1384—ab
HIBERNATION
  Artificial: See Cold, therapeutic use
HIGH
  Altitude: See Altitude
  Blood Pressure: See Blood Pressure, High
  Frequency Apparatus: See Diathermy
  Frequency Sound: See Ultrasonics
HIGHWAY Accidents: See Automobiles, accidents
HILL-Burton Program: See Hospitals, building program
HIP: See also Buttocks; Femur; Pelvis; Thigh
  dislocati[illegible] disease after [illegible]—ab
  dislocati[illegible] [Speed] 1168—ab
  fracture, necrosis of femoral head (reply) [Milch] 656
  Surgical Approaches to Hip Joint (film review) 272
HIRSUTISM: See Hair, excessive
HISTAMINE
  Antihistamine: See Antihistamines
HISTOLOGY: See Cells; Tissues
HISTOPLASMA
  capsulatum, routine bone marrow culture for, [Rohn] 1371—ab
HISTORY of Medicine: See Medicine, history
HIVES: See Urticaria
HOBBIES: See Leisure Corner; Physicians, avocations
HOBBY, OVETA CULP, address at A.M.A. New York meeting, 740
HODGKIN'S DISEASE
  biopsy techniques in intrathoracic lesions, [Storey] 1268—ab
  osseous localization, [Leger] 193—ab
  pulmonary, in Tietze's syndrome, [Motulsky & Rohn] *504
  splenic hemolytic anemia, [Aas] 281—ab
  treatment, nitrogen mustard in, complicated by acute hepatitis, [Harris] *400

HODGKIN'S DISEASE—Continued
  treatment, triethylene melamine, [Lenti] 370—ab
  treatment triethylene melamine vs. nitrogen mustard, [Bond] 1655—ab
  woman lives 17 years with, Paris, 182
HODSON, A. L., introduction at A.M.A. meeting, 742
HOGS: See Trichinosis
HOLST, JOHAN, death, Norway, 1065
HOME
  Accidents: See Accidents, home
  care of beta hemolytic streptococcic infections, [Breese] *10
  care of children with rheumatic fever, Montefiore project, [Young & Rodstein] *987
  care of chronically ill persons, Philadelphia plan, [Udell] *990
  consecutive residence visits (1,000) to acutely ill patients, [Couter & others] *1704
  how to obliterate odor of urine in house from cats, 200
  humidity in: why are plants removed from patient's rooms? 1580
  Treatment: See Home care; Self-Medication
HOME LIFE: See Journals
HORDER, THOMAS JEEVES, 1st baron
  criticizes organization of National Health Service, London, 1064
HORMONES: See also Endocrinology; under names of specific glands
  effects on nitrogen balance in elderly, [Kountz] 1665—ab
  Laurentian Hormone Conference, 174
  massive therapy, discussed at International Congress of Therapeutics, Spain, 626
  Sex: See Androgens; Estrogens; Sex hormones
  Steroid: See Steroids
  tablets, gift to India by White Laboratories, Inc., 860
HORSE SERUM: See Serum
HOSIERY
  Elastic Stockings (Ritter Co.), 239
  T. E. D. Elastic Stockings, 1235
HOSPITALIZATION INSURANCE: See Hospitals, expense insurance; Medical Service Plans
HOSPITALS: See also Clinics; Medicolegal Abstracts at end of letter M
  Accreditation: See Hospitals, registered
  administration, harmony in, [Berke] 475—C
  American Hospital Association, (joint committee report on hospital physician relationship) 729; 731, (A.M.A. resolution on their magazine *Trustee*), 844 (program of meeting) 1723
  A.M.A. Council on Medical Education and Hospitals: See American Medical Association
  A.M.A. resolution on professional and administrative audit, 848
  Approved by A.M.A.: See Hospitals registered
  Argonne Cancer Research Hospital dedicated at U. of Chicago, 247
  army, Mobile Army Surgical Hospital, 1449
  bed capacity of Richmond hospitals participating in indigent medical care program, Council report, 269
  bed capacity, statistics on, *147; 164—E
  beds, percentage occupied, *152; *153; 164—E
  Beekman-Downtown, dedicated, N. Y., (picture) 1055
  blood banks operated by, conflict with that of Dade County, Fla. (Council report) 852
  Building Program: See also Hospitals, veterans; and various subheads under Hospitals
  building program (Hill-Burton program), (President McCormick's Page) 1718
  Care: See Hospitals service
  cart, new type of "armchair" therapy cart, [Klain] *517
  Case Records: See Medical Record Librarians; Medical Records
  children's, exclude children with primary tuberculosis from? 1496
  Children's, opened, D. C., 246
  children's, statistics on, *145; *150
  city (large), impact of modern therapy on pulmonary tuberculosis in, [Weiss] *890
  city, named for H. S. Martland, 1439
  classified by size and control, *144; 164—E
  classified by size and type of service, *144; 164—E
  Cleveland, U.S.P.H.S. service discontinued in, 623
  Cook County (Karl A. Meyer Residence Hall at; (picture) 1163; (Dr. Ole Nelson retires) 1246
  cooperating in Philadelphia plan for home care of chronically ill, [Udell] *990
  costs, London, 353
  costs, reducing operating costs depends on the physicians' orders, [Howe] 1260—C
  costs, room rates, old and new base periods for, 1341—E; (Bureau article) [Dickinson] *1365
  costs then and now, Denmark, 624
  costs, who pays the hospital? Conn., 1346
  ear, nose and throat, new in Helsinki, 180
  economy in manpower, London, 1064

HOSPITALS—Continued
  Expense Insurance: See also Insurance, sickness; Medical Service Plans
  expense insurance, 1341—E; (Bureau article) [Dickinson] *1365
  eye, ear, nose and throat, *145; *149
  Facilities: See Hospitals, service
  Fire and Your Hospital (film review), 477
  Flower and Fifth Avenue Hospitals, teaching affiliation, 947
  for American Indians, transfer of, [Lull] 169
  Freedmen's, interns and residents, D. C., 462
  general practice sections in, *158; (report of Joint Commission on Accreditation of Hospitals) [Crosby] 825
  general, psychiatry in, Norway, 73
  general, statistics on, *145; *149
  Government: See also Hospitals, veterans
  government, A.M.A. resolution on creating U.S. Dept. of Health to be concerned with, 845
  government, statistics on, *144; *145; *146; 164—E
  Grace-New Haven Community, Conn., (picture), 943
  Group Hospitalization: See Hospitals, expense insurance
  growth of, summary, 1909-1952, *144; 164—E
  Health Museum, (Lankenau's, Pa.) 859; (Cleveland) [Martin] *1628
  history, St. Joseph's centennial, St. Paul, Minn., 248
  industrial, statistics on, *145; *149
  Insurance: See Hospitals, expense insurance
  International Hospital Congress (8th), 63
  Interns; Internships: See Interns and Internships
  isolation, statistics on, *145; *150
  maternity, births in hospitals, statistics on, *153; *154; 164—E
  maternity, short stay in, Australia, 70
  maternity, too much routine care in obstetrics, [Notes] 1732—C
  maternity ward, Chile, 547
  medical motion pictures used by, questions on by A.M.A. Committee, 157
  Medical Service Plans: See Hospitals, expense insurance
  Medical Staff: See Hospitals, staff
  Montefiore, home care of children with rheumatic fever, [Young & Rodstein] *987
  Mount Sinai Medical Center, Chicago, (picture) 616
  Municipal: See Hospitals, city
  Neuropsychiatric: See Hospitals, psychiatric
  New York City, invitation to visit, [Kogel] 266—C
  Northside, Eastman gift to, New York, 1055
  Nuffield Provincial Hospitals Trust, London, 1064
  number, May 9, 1953, page 143
  number, size, and classification, *145; 164—E
  Nurses; Nursing: See Nurses and Nursing
  Operating Room; Table: See Surgery
  Orthopedic, establishes scholarship plan for physical or occupational therapists, 1054
  orthopedic, statistics on, *145; *150
  outpatient clinic building (new), Ala., 535
  outpatient departments, statistics, *157
  patients, average daily census, *152; 164—E
  patients, average length of stay, *153; 164—E
  patients, controversy over morning sponge bath, Australia, 70
  patients, effects of [illegible] on clinical status c[illegible] *109
  patients, [illegible], 164—E
  patients' rooms, why are plants removed from at night? 1580
  patients want later waking hours, London, 1454
  Personnel: See also Hospitals, staff
  personnel, relations to patients, [Higgins & Kaplan] *111
  personnel (technical), statistics on *159; *160; 165—E
  Physicians: See also Hospitals, staff
  physicians orders, reducing operating costs depends on, [Howe] 1260—C
  Physicians Relationships, report of Joint Committee of A.M.A. and American Hospital Association, 729; 731
  private, A.M.A. resolution on intern training in, 836, (Reference Committee report) 837
  privilege tax by, physicians give per cent of fees for using hospital, 728
  psychiatric design, Rockefeller grant for study, 1642
  psychiatric, handbook for employees, N. Y., 536
  psychiatric, local and national organizations interested in mental health, 48—E
  psychiatric psychoses due to syphilis in patient in, [Bauer] *300; *302
  psychiatric, statistics on, *145; *149
  radium, annual report for 1951, Norway, 549
  Records: See Medical Record Librarians, Medical Records
  registered by A. M. A. Council, addition to list, 1068
  registered, Joint Commission on Accreditation of Hospitals, report of meeting on April 19, 1953, [Crosby] 825
  Residents; Residencies: See Residents and Residencies
  Service: See also Medical Service Plans

HOSPITALS—Continued
  service classified by control, summary, *144; 164—E
  service, data according to type of service, summary, *145; 164—E
  service, facilities by states and by control; nonprofit organizations, *147; 164—E
  service, facilities by states and by control; proprietary, *148
  service, facilities by states and by type of service, *145; *149; *150
  service, governmental and nongovernmental, *145; 164—E
  service in United States, 32nd annual presentation of data, *143; 164—E
  service, internship and its place in, 828; 831
  Staff: See also Hospitals, physicians
  staff meetings, report of Joint Commission on Accreditation of Hospitals, [Crosby] 825
  staff members, effect on clinical course of patients, [Higgins & Kaplan] *112
  STANDARD NOMENCLATURE OF DISEASES AND *OPERATIONS* used in, *158
  Tuberculosis: See Tuberculosis hospitals
  USPHS at Fort Stanton, New Mexico, to be closed, 1062
  veterans, address of commander of American Legion, L. K. Gough, 852; (A.M.A. resolution on) 855
  veterans', A.M.A. resolution on regulation of nursing in, wage scale, 849
  veterans, A.M.A. resolution on treating non-service-connected disabilities in, 838; 839; (President McCormick's page) 1718
  veterans, completed during 1952, (pictures) 69
  veterans, Dr. Martin's statement before U. S. House Subcommittee, 1342
  veterans, news, 546
  veterans, non-service-connected disability situation in, President's page, 458
  Veterans, Residencies in: See Residents and Residencies
  X-ray departments in, *156
HOSTELS: See Tourists Camps
HOT FLASHES: See Flushes
HOTELS: See also Tourists Camps
  industry, direct medical service plan in, New York, [Guidotti] *788
HOUSE See Flooring; Home
  -Committee: See under United States
  of Delegates: See American Medical Association
HOWARD Award: See Prizes
HRYNTSCHAK'S Technic: See Prostatectomy
HUMERUS
  fractures (supracondylar), Italy, 1164
HUMIDITY
  humidifier, Vapojette supersaturation attachment, 1235
  in home: why are plants removed from patients' rooms in hospitals? 1580
HUMMEL, R. J., tuberculosis incidence among American medical students, 922—E; [Miller] 1554—C
HUNGER: See Appetite; Starvation
HUTCHINGS Lecture: See Lectures
HYALURONIDASE
  effect on experimental exophthalmos, [Nuzum] 1377—ab
  labor induced by, [Pellizzari] 1671—ab
  N.N.R., (Hyazyme of Abbott) 332
  subcutaneous injections to prevent kidney stones, 1082
  treatment in toxemia of pregnancy, [Pellizzari] 1671—ab
HYAZYME: See Hyaluronidase
HYDATIDIFORM Mole: See Placenta tumors
HYDERGINE
  treatment of hypertension, Denmark, 1163
HYDRALAZINE (Apresoline)
  toxicity, acute psychosis, [Moser & others] *1329
  toxicity pancytopenia, [Kaufman] (correction) 465
  treatment of hypertension, [Moser & others] *1329; [Essellier] 1386—ab; [Moyer] 1459—ab; [Sokolow] 1465—ab
  treatment plus hexamethonium in diastolic hypertension, [Romney] 1734—ab
  treatment vs. dibenzyline in hypertension, [Miller] 1375—ab
HYDRATION: See also Dehydration
  rehydration of infants with amniotic fluid from newly pregnant animals, Paris, 74
HYDRAZIDES: See Iproniazid; Isoniazid
HYDROARTHROSIS
  intermittent, Primer on Rheumatic Diseases, *530
HYDROCELE
  congenital, origin of fluid, (reply) [Griffin] 1500
  of neck, evanescent mass in supraclavicular fossa, (reply) [Seed] 776
HYDROCEPHALUS
  cause of mental deficiency, [Levinson & Goldenberg] *786
HYDROCORTISONE (Hydrocortone)
  free alcohol ointment, [Sulzberger & others] 1456—C
  how it affects resistance of tissues *to injury*, [Selye] *1207
  treatment, local injection into skin lesions of sarcoidosis, [Sullivan & others] *308
  treatment of gout, [Smyth] *1106
HYDROCORTONE: See Hydrocortisone
HYDROGEN ION CONCENTRATION
  of saliva and tooth decay, 483
  of Serum: See Blood
  perspiration stains on metal: pH of skin, 295
HYDROPHOBIA: See Rabies
HYDROPS Fetalis: See Erythroblastosis, Fetal
HYDROQUINONE
  monobenzyl ether of (benoquin), treatment of melanin hyperpigmentation (freckles), [Lerner & Fitzpatrick] *577
HYDROSTATIC Pressure: See Pressure
HYDROSULFOSOL: See Calsulfhydryl
17-HYDROXYCORTICOSTERONE (Compound F): See Hydrocortisone
HYDROXYCOUMARIN
  Methylene bis: See Bishydroxycoumarin
HYGEIA (Today's Health): See American Medical Association, Today's Health
HYGIENE: See also Health; Sanitation
  Industrial: See Industrial Hygiene
  Mental: See Mental Health
  Personal Hygiene for Boys (film review), 648
  State Laboratory of, Wis., 746
HYGROSCOPIC SUBSTANCE
  esophageal obstruction from, [Melamed & Marck] *318
HYOSCINE: See Scopolamine
HYPERCHOLESTEREMIA: See Blood cholesterol
HYPERGLYCEMIA: See Blood sugar
HYPERKALEMIA: See Blood potassium
HYPERPARATHYROIDISM: See Parathyroid
HYPERPNEA: See Respiration, hyperventilation
HYPERPOTASSEMIA: See Blood potassium
HYPERPYREXIA: See Fever, therapeutic
HYPERSENSITIVITY: See Allergy
HYPERSPLENISM: See Spleen
HYPERTENSION: See Blood Pressure, High
HYPERTHERMIA: See Fever
HYPERTHYROIDISM: See also Goiter
  treatment, 1288
  treatment, antithyroid drugs and thyroid pathology, Belgium, 1255
  treatment, methimazole, agranulocytosis and toxic hepatitis from [Rosenbaum & Reveno] *27
  treatment, radioactive iodine, [Allen] 1071—ab
  treatment, thiouracil, 6-ethylthiouracil, 6-propylthiouracil, and thiobarbital, [Solomon & others] *201
HYPERTRICHOSIS: See Hair, excessive
HYPERTROPHIC ARTHRITIS: See Joints, degenerative joint disease
HYPERTROPHY: See Heart; Prostate
HYPERVENTILATION: See Respiration, hyperventilation
HYPNOTICS
  use in aging and senile patients, [May & Ebaugh] *801
HYPOALBUMINEMIA: See Blood proteins
HYPOGLYCEMIA: See Blood sugar
HYPOKALEMIA: See Blood potassium
HYPOPHYSIS: See Pituitary
HYPOPLASTIC SYNDROME
  caused by drug idiosyncrasy, (Council report) [Osgood] *816; 823—E
HYPOPOTASSEMIA: See Blood potassium
HYPOPROCONVERTINEMIA: See Blood
HYPOPROTEINEMIA: See Blood proteins
HYPOPROTHROMBINEMIA: See Blood prothrombin
HYPOSENSITIZATION: See Allergy
HYPOSPADIAS
  Sorensen's study, Denmark, 1649
HYPOSPRAY
  parenteral administration by jet injection, 532—E
HYPOTASSEMIA: See Blood potassium
HYPOTENSION: See Blood Pressure, low
HYPOTHERMIA: See Cold, therapeutic use
HYPOTHYROIDISM: See also Myxedema
  cause of mental deficiency, [Levinson & Goldenberg] *785
  diagnosis, scintillation counter in, [Barrett & others] *1414
HYPOXIA: See Oxygen deficiency
HYSTERECTOMY: See Uterus surgery

I

I^{131}: See Iodine, radioactive
I.L.O.: See International Labor Organization
IATROGENIC heart disease, 457—E
ICE
  Therapeutic Use: See Cold, therapeutic use
ICE CREAM
  safety of, in Europe, 1288
ICHTHYOSIS
  in 11 year old girl, 1499
ICTERUS: See Jaundice
  Encephalomyelopathy with: See Kernicterus
IDIOCY
  mongolism, mental deficiency, [Levinson & Goldenberg] *783
IDIOSYNCRASY: See Allergy
ILEITIS
  regional: roentgen ray diagnosis, 199
ILEOCOLITIS
  staphylococcic, erythromycin for, [Herrell & others] *1604
ILEOSTOMY: See also Colostomy
  plus subtotal colectomy in ulcerative colitis, [Crile] 1664—ab
  Torbot ileostomy outfit, 821
ILEUM
  surgery, ileal segment used as substitute ureter, [Rack] *516
ILEUS: See Intestines obstruction
ILLE Mobile Sitz Bath, Model SB 100, 1433
ILLINOIS
  University of: See University
ILLNESS: See Disease
  Insurance covering: See Insurance, sickness
  Time lost because of: See Industrial Health workers absenteeism
ILLUMINATION: See Lighting
ILOTYCIN: See Erythromycin
IMMIGRANT Physicians: See Physicians, foreign
IMMUNITY: See also Antibodies; under names of specific diseases as Trypanosomiasis
  radiocobalt effect on, [Hale] 1668—ab
IMMUNIZATION: See also Vaccination; under specific diseases as Diphtheria; Typhoid
  BCG: See Tuberculosis immunization
  pediatric, precautions in, [Sauer] *1314
IMMUNOLOGY
  mechanisms in thrombocytopenic purpura, [Harrington] 1169—ab
IMPERATORINE: See 8-Methoxypsoralen
IMPETIGO
  treatment of streptococcic infections in the home, [Breese] *10
IMPLANTS: See Cartilage; Estrogens; Eyes; Placenta; Spleen; Tantalum
IMPOSTORS
  alleged physician who uses name of Dr. Samuel Pike Hall, wanted, 1344
  warning—magazine salesman, Colo., 1054
IMPREGNATION: See Coitus; Pregnancy; Superfetation
  Preventing: See Contraception
INANITION: See Nutrition deficiency; Starvation
INCOME: See also Fees; Wages
  physician's, new look at prices, 1341—E
  Tax: See Tax, income
INCONTINENCE: See Urine
INDALONE: See Butopyronoxyl
INDEPENDENCE Day: See Fourth of July
INDEX
  Medicus: See American Medical Association, Quarterly Cumulative Index Medicus
  of efficiency, of applicants for research fellowship, [Bowen] *696
INDIA
  home treatment: brass pot (chimboo) to cure stomachache, (pictures) [Oliver] 1456—C
  Indian Council of Medical Research, funds for medical schools, 748
  medical help for; A.M.A. endorsed joint project of CARE and W.H.O., 1045—E
  speeds birth control program, 1156
  White Laboratories, Inc., gift of hormone tablets to, 860
INDIAN HEMP: See Cannabis Sativa
INDIANA
  State Medical Ass'n resolution on care of crippled children; Watch it, *Life*, 1142—E
INDIANS, AMERICAN
  transfer of hospitals for, letter from Dr. Lull, 168
INDIGENT: See Medically Indigent
INDIGESTION
  nervous, 1083
INDUSTRIAL ABSENTEEISM: See Industrial Health workers
INDUSTRIAL ACCIDENTS
  acute renal insufficiency after trauma to abdominal wall, [Gelfand & Shapiro] *319
  factory, London, 1550
INDUSTRIAL DERMATOSES
  chrome dermatitis (chronic), dimercaprol (BAL) ointment for, [Cole] 187—ab
  evaluated by analyzing its pattern, [Waldbott] 967—ab
  fiberglas, eruption from working with, 1290
  history of industrial dermatology, 923—E
  in office workers, [Morris] *1218
  nickel eczema, [Morgan] 1178—ab
  woods cause of, [Weber] 1655—ab
INDUSTRIAL DISEASES: See also Industrial Dermatoses
  allergic conditions in industry, [Suskind] 967—ab
  anthrax (laboratory-acquired) in bacteriologist, 1084
  barbers' disease, [Waris] 1466—ab
  cadmium poisoning (chronic), signs of, 514—ab
  cancer, trauma as cocarcinogen in oil worker, [Kotin] 1170—ab
  carnotite ore dust, acute toxicity, [Wilson] 1459—ab
  chromate workers, health of, studied by USPHS, 270
  chromium poisoning, symptomatic pernicious anemia in, [Steim] 1575—ab
  electric arc welding: at what distance is it harmful to bystander eyes? 1083
  farmer's lung, [Fuller] 1387—ab
  flour [illegible] in baker, 1677
  herpe[illegible] trauma, 1291
  lead [illegible] ,94

INDUSTRIAL DISEASES—Continued
- mercurialentis in thermometer maker, [Hunter] 1380—ab
- milker's nodules, 50—E; [Green] 757—C; [Lane] 1067—C; [Ronchese] 1732—C
- parathion poisoning, change in electrolytes in, [Annis & Williams] *594
- parathion poisoning in citrus grove operations, [Williams] 1071—ab
- photoengraving finisher in magazines and newspapers, hazard for, 1290
- Pneumonoconiosis: See Pneumonoconiosis
- radiation burns from X-ray diffraction apparatus, [Watrous & others] *513
- Silicosis: See Pneumonoconiosis
- vestibular chronaxia in poisoning, Paris, 182
- welders, respiratory disorders in, [Charr] *1520

INDUSTRIAL HEALTH: See also Industrial Hygiene
- A.M.A. Council on: See Council on Industrial Health
- cardiac problems in, W. Va., 1440
- Boeing medical headquarters, Washington, 947
- careers of applicants for Rockefeller fellowships, [Bowen] *693
- Conference, Texas, 1722
- direct medical service plan in New York hotel industry, [Guidotti] *788
- employment of epileptics, [Lennox & Markham] *1693
- extra milk for welders, 776
- hospitals, statistics on, *145; *149
- Industrial Institute at Yale Center of Alcohol Studies, Conn., 1152
- Infectious Hazards of Bacteriological Techniques, (film review), 965
- medicine, Congress of (2nd) Argentina, 752
- medicine course, N. Y., 1640
- medicine, meeting on, by Chicago Society of Industrial Medicine and Surgery, 745
- medicine, professor of, appointed at Woman's Medical College, Pa., 1721
- medicine, seminars in, Mich., 1540
- medicine, two graduate courses, 61
- need to teach, to medical students, (Council report) [Kehoe] *1262
- Pennsylvania Railroad expands medical service for employees, 1642
- perspiration stains on metal: pH of skin, 295
- program on occupational health, Mass., 745
- psychiatry in industry, 240—E
- radiological health training program, 1062
- workers, absenteeism due to specific chronic disease, Primer on Rheumatic Diseases, *324
- workers, absenteeism, survey of prolonged nonoccupational illness by Research Council for Economic Security, (Council article) *1457

INDUSTRIAL HYGIENE
- British Occupational Hygiene Society, 1156
- director appointed, N. Y., 537
- factory inspection by U. S. Food and Drug Administration, [Lull] 169
- medical supervision of persons in radiological service, Norway, 1550
- mobile first aid station for protection of industrial plants by California Civil Defense Organization, (picture) 1450
- procedure to protect handlers of bodies of persons dead from contagious diseases, 108
- radioactive contamination removed from hands with soap powder-wood flour mixture, [Gregory] 365—ab

INDUSTRIAL INJURIES: See Industrial Accidents

INDUSTRIAL POISONING: See Industrial Dermatoses; Industrial Diseases

INDUSTRIAL TRADE UNIONS
- A.M.A. resolutions on International Labor Organization, 845
- CIO's intense desire for a national health insurance program, President's page, 824
- direct medical service plan in hotel industry: New York Trades Council, [Guidotti] *788

INEBRIETY: See Alcoholism

INFANTILE PARALYSIS: See Poliomyelitis

INFANTS: See also Children; Infants, Newborn; Pediatrics; under names of specific diseases
- convulsion in after injecting diphtheria-tetanus toxoids and pertussis vaccine, 1289
- DDT poisoning in, [Keizer] 1484—ab
- Emergency Maternity and Infant Care Program: See Emergency
- feeding, Beech-Nut Junior Banana Dessert, 45
- feeding (breast), should mother nurse erythroblastotic babies? 1396
- feeding: 3-meal-a-day routine and solid food on 2nd day of life, [Sackett] 1176—ab
- heart failure in, Paris, 182
- Hospitals for: See Hospitals, children's
- measles in, 985
- milk-aspiration pneumonia, [Moran] 1369—ab
- mortality from syphilis, [Bauer] *302
- myocarditis (isolated) in, Fiedler disease, [Conlin] 1272—ab
- obtaining blood specimens and giving transfusions to small infants, [Kunz] 90—ab
- premature: dosage of caffeine and sodium benzoate and nikethamide, 1585
- premature, function of adrenal cortex in, [Lanman] 363—ab
- premature, kernicterus and prematurity, [Govan] 1278—ab
- Premature, Retrolental Fibroplasia: See Lens, Crystalline

INFANTS—Continued
- prematurity as cause of mental deficiency, [*Levinson & Goldenberg*] *784
- rehydration of, with amniotic fluid from newly pregnant cows and ewes, Paris, 74
- renal vein thrombosis in, [Warren & others] *700
- roseola infantum or "3 day measles," 1395
- smallpox vaccination, 1499
- subdural effusions in, [Guthkelch] 282—ab; [Stevens] 1470—ab

INFANTS, NEWBORN: See also Fetus; Placenta
- Abnormalities in: See Abnormalities
- amebic patient 13 days old, [Weiser] 1554—C
- anoxia or hemorrhage in, cause of mental deficiency, [Levinson & Goldenberg] *786
- Asphyxia in: See Asphyxia in newborn
- Birth Process: See Labor
- Birth Rate: See Vital Statistics, birth rate
- care of newborn infant of diabetic mother, 105
- Erythroblastosis: See Erythroblastosis, Fetal
- esophageal atresia and tracheoesophageal fistula, [Grow & Neerken] *1614
- granuloma venereum, [Scott] 873—ab
- Heredity and Pre-Natal Development (film review), 965
- Icterus in: See Jaundice in newborn
- Mortality: See Stillbirth
- purpura recurring in pregnancy affect? 1583
- receded lower jaw in; correction of micrognathia, 1291
- resuscitation, [Greenhill] 961—C
- resuscitation, method and machine for, [Mann] *1333; (correction) 1643
- shaving scalp of, custom in Orient; relation to transmission of leprosy, [Cleve & Pruitt] *573 [Reiss] 1652—C
- transmission of penicillin through human placenta, [Raspe] 977—ab

INFARCTION: See Brain; Lungs; Myocardium

INFECTION: See also Immunity; Pneumococcus; Staphylococcus; Streptococcus; under specific organs and regions
- anemia of, 681—ab
- Focal: See also Mouth; Teeth
- focal, joint responsibility of otolaryngologist and internist in removal of, 811—ab
- is primary tuberculosis infectious? exclude children from orphanage or hospital, 1496
- of Blood: See Bacteremia; Septicemia
- Prevention: See Sterilization, Bacterial
- radiation burns from diffraction apparatus simulating, [Watrous & others] *513
- subphrenic, 1304—ab
- tantalum gauze in presence of, [Koontz] 1557—ab
- treatment, antibiotics, clinical problems relating to, [Spink] *585

INFECTIOUS DISEASE: See also Communicable Diseases; Epidemics; under names of specific diseases as Measles
- meeting on, sponsored by Lederle Laboratories W. Va., 1349
- course in, Colo., 943
- in 1952, Sweden, 264
- mortality due to, Italy, 753
- Preventing: See Immunization; Vaccination
- what is difference between contagious disease and communicable disease? 108

INFECTIOUS HEPATITIS: See Liver Inflammation

INFECTIOUS MONONUCLEOSIS: See Mononucleosis, Infectious

INFECTIOUS NEURONITIS: See Guillian-Barré Syndrome

INFERTILITY: See Sterility

INFLAMMATION: See also under names of specific diseases and organs as Arteritis; Bladder; Colitis; Heart; Pancreas; Phlebitis; Stomach
- how hydrocortisone affects resistance of tissues to injury, [Selye] *1207
- treatment, trypsin injection, [Innerfield & others] *597

INFLUENZA
- epidemic in Mexico, 1165
- Meningitis: See Meningitis
- of Parrots: See Psittacosis
- on Arctic island, 349
- prepared from egg material, 775
- treatment, trypsin injection, [Innerfield & others] *597
- vaccine: routine use advisable? 1083
- virus, 1029—ab
- virus, antigenic study of strain A′ and B 1951, [Fauconnier] 99—ab
- virus, experiments with new strains, [Cateigne] 99—ab
- virus vaccine prepared from egg material; preventive value, 775

INFRA-RED RAYS
- color of summer clothing and passage of ultraviolet rays, 292

INFUSIONS: See Injections

INGEBRIGSTEN, RAGNVALD, festschrift for, Norway, 73

INHALATION: See also under names of specific substances as Antigens; Carbon Dioxide; Isopropyl Alcohol; Trypsin
- of Dust: See Pneumonoconiosis
- value of nebulized spray containing camphor, menthol, and liquid petrolatum, 1290

INHERITANCE: See Heredity

INJECTION: See also under names of specific substances
- Intra-arterial: See also Blood Transfusion, intra-arterial
- intra-arterial, of antazoline in endarteritis obliterans, [Marinoni] 1381—ab
- intra-arterial, of nitrogen mustard for cancer, [Grady] 762—ab
- intramuscular, into buttocks, (reply) [Blair] 296
- intramuscular, of streptomycin calcium chloride complex, local pain from, [Long & others] *25
- intramuscular, relation to poliomyelitis, [Townsend-Coles] 771—ab
- Intraspinal: See Anesthesia, spinal
- Intravenous: See also Blood Transfusion
- intravenous glucose solution infusion, 881
- intravenous, growth of bacteria in infusion fluids, [Michaels] 1482—ab
- intravenous, of iron, fate of, [Lintzel] 1076—ab
- intravenous, of thiocyanate for hypertensive headache, [Saint-Pierre & others] *493
- intravenous, of vitamin B, 1184
- intravenous use of distilled water, warning, 566
- jet, parenteral administration by, 532—E
- parenteral nutrition, [Strickler] 972—ab
- parenteral, of packed red blood cells as source of protein, [Calloway & Mowrey] *777
- parenteral, of trypsin, [Innerfield & others] *597
- Spinal: See Anesthesia, spinal

INJURIES: See Accidents; Burns; Fractures; Trauma; Wounds; under specific organ or region as Blood Vessels, Brain; Head; Kidneys
- Industrial: See Industrial Accidents
- War: See Korean War

INOCULATION: See Immunization; Vaccination

INOSITOL
- complex, effect on cholesterol metabolism, [Sherber & Levites] *682

INSANE ASYLUMS: See Hospitals, psychiatric

INSANITY: See Dementia Paralytica; Dementia Precox; Mental Disorders; Psychiatry
- Delusional: See Hallucinations

INSECTICIDES
- DDT: See Chlorophenothane
- health hazards of vaporizing and fumigating devices, (Committee report) *1232; 1238—E
- Parathion: See Parathion
- toxaphene poisoning (fatal) in child, [Pollock] 1473—ab
- use and abuse of generic (coined common) names for, (Committee report) *818

INSECTS: See also Bees; Fleas; Flies; Mosquitoes; Wasps
- desensitization, 104
- transmit pinta and trypanosomiasis, Ecuador, 180

INSEMINATION
- Preventing: See Contraception

INSOMNIA: See Sleep

INSTITUTE: See also Societies and Other Organizations at end of letter S
- for Public Health Officers, Ill., 744
- Instituto Superior transformed into University, Mexico, 1259
- of Neurosurgery and Cerebral Investigations report, Chile, 351
- of Public Health and Tropical Diseases, Mexico, 1359

INSTITUTIONS: See Children, orphanage; *Hospitals*; Schools; Schools, Medical

INSTRUCTION: See Education; Education, Medical; Schools; University

INSTRUMENTS: See also Apparatus; Hearing Aids; Medical Supplies; Needles; Sphygmomanometers; Syringe; Thermometers
- breaking of, hazards of lobotomy, [Freeman] *489
- for continuous recording of body temperature, [Weiss & Ripstein] *610; (correction) 1058
- lacerations of rectum from, [Turell] *136
- nitrogen meter to estimate rate of elimination of gaseous nitrogen, [Boothby & others] *1000
- Sterilization: See Sterilization, Bacterial
- surgeon's helper: powerful patented magnet, [Duffy] 1067—C
- tattooing of nevus flammeus for permanent camouflage, [Conway] *666

INSULIN
- allergy to, (reply) [Dolger] 296
- dosage in extreme hyperglycemia and severe ketosis with spontaneous remission of diabetes, [Cheng & others] *1531
- effect on nitrogen balance in elderly patients, [Kountz] 1665—ab
- injections, fat atrophy after, 376
- injections, lipodystrophy after, [Paley] 1562 ab—
- shock treatment, electrical termination of hypoglycemic coma, [Montagu] 284—ab
- test after vagotomy in duodenal ulcer, [Stempien & Weinberg] *1593
- treatment (subshock) of multiple sclerosis, [Rodriguez-Arias] 1486—ab

INSURANCE
  A.M.A. resolution on Health and Welfare Funds, 849
  disability, federal bills on, A.M.A. attitude on, 1049; 1241
  GI insurance, new ruling, 1648
  Health: See Insurance, sickness
  Hospitalization: See Hospitals, expense insurance
  Life Insurance Medical Research Fund: See Foundations
  malpractice, professional liability, A.M.A. resolutions on, 727; 732; 733
  malpractice rates in medical partnerships, A.M.A. resolution on, 843; 844
  Sickness: See also Hospitals, expense insurance, Medical Service Plans
  sickness (compulsory), CIO's intense desire for, *President McCormick's page*, 824
  sickness (compulsory), federal bills on, A.M.A. attitude on, 1050; 1242
  Sickness, National Health Service; Beveridge Plan: See National Health Service, England
  sickness, plan in hotel industry, New York, [Guidotti] *788
  sickness, reform of, Belgium, 1255
  sickness, Switzerland, *1065*
  sickness, voluntary, [Bauer] 722
INTELLIGENCE: See also Mental Defectives
  [illegible] tubercu-
  [illegible] 97—ab
[illegible] an; Pan
  American
[illegible] health prob-
[illegible] itus
INTERN: See Interns and Internships
INTERNAL MEDICINE
  American Board of: See American Board
INTERNAL SECRETION, Glands of: See Endocrinology
INTERNATIONAL: See also United Nations; World Congress; World Federation; World Medical Association
  College of Surgeons, Brazilian Section, 70
  Conference on Medical Education: See World Conference
  Congress for History of Science, 861
  Congress for Microbiology, 1156
  Congress of Audiology, 252
  Congress [illegible] and Clinical [illegible]
  Congress [illegible], 861
  Congress of Leprosy (6th), 1058
  Congress of Ophthalmology, 251; (invites papers) 1542
  Congress of Radiology, July 19-24, 748
  Congress of Rheumatic Diseases, 540
  Congress of Therapeutics (3rd) held in Madrid, Spain, 625
  Congress of World Confederation for Physical Therapy, first meeting, 950
  Congress on Biochemistry (2nd) Paris, 74
  Congress on Medical Librarianship (first) London, July 20-25, 1156
  Cruise Congress (9th), 1722
  Health Organization: See World Health Organization
  Hospital Congress (8th), 63
  Labor Organization, A.M.A. resolutions on, 845
  Medical Law, Belgian Society of, 350
  Meeting on Military Medicine, 1058
  Neurological Congress (5th), 1724
  Physiological Congress (19th), 1724
  Society for Geographical Pathology: geography and disease, [Karsner] 355—C
  Society of Angiology, 1156; 1724
  Society of Surgery (15th congress), 1724
  symposium on vitamins, Italy, 1453
  vaccination certificates (new) 1161
INTERNS AND INTERNSHIPS: See also Residents and Residencies
  additional internships approved by A.M.A., 185
  Advisory Committee on Internships, Council report, 829
  A.M.A. *resolutions on essentials of approved* internships, 836, (Reference Committee report) 837
  A.M.A. resolution on restudy of Matching Plan for Internships 846
  A.M.A. resolutions on revision of essentials of approved internships, 837
  A.M.A. resolution on selection of interns, 846
  army internships, June graduates receive, 179
  Cross (Frank B) prize, 249
  foreign physicians as interns in U. S., statement by Health Resources Advisory Committee [Aufranc] 869—C
  internship and its place in present-day medical education and hospital service, 828; 831
  licensure requirements for interns, *436; *438
  medical schools and state boards requiring internships, *436; *438
  practical instruction for interns, D. C., 1638
  priority 3 interns, deferment of, 50—E
  program, A.M.A. resolution on revision of, 836, (Reference Committee report) 837
  training at naval hospitals, 623
INTERVERTEBRAL DISK: See Spine
INTESTINES: See also Appendix; Cecum; Colon; Duodenum; Feces; Gastroenter*ology; Gastrointestinal Tract; Ileum;* Jejunum; Rectum
  adhesions, streptokinase, streptodornase, and pancreatic enzymes to prevent, [Cavallini-Francolini] 1078—ab
  Anastomosis: See Intestines, surgery
  bacteria, effect of penicillin on vitamin-elaborating bacteria, 564
  bacteria, how can it be changed? use of drugs and diet, 1676
  cancer complicated by intestinal parasites? 1678
  cancer (multiple primary) [Phillips] 1569—ab
  Disease: See Colitis; Gastroenteritis; Ileitis; Typhoid
  Diverticulosis: See also Colon
  diverticulosis, 512—ab
  foreign bodies: glass, 1499
  Hernia: See Hernia
  Inflammation: See also Ileitis
  inflammation (staphylococcic) from antibiotics, erythromycin to counteract, [Dearing] 1073—ab
  inflammation, allergic regional enteritis, [Rowe] 1664—ab
  inflammation, tourists' enteritis: value of olive oil in diet (reply) Martinez Diaz] 200
  Intussusception (ileocecal): See Intussusception
  iron medication: which form is best tolerated by? 1393
  irrigated with human bile in meconium ileus, [Blegen & others] 1261—C
  irritable bowel syndrome, 1585
  obstruction caused by adhesions, [Parker] 1267—ab
  obstruction, meconium ileus, additional case, [Blegen & others] 1261—C
  obstruction, meconium ileus with pancreatic cystic fibrosis, [Montgomery] *225
  obstruction, paralytic ileus due to potassium depletion, [Grieve] 980—ab
  Parasites: See also Teniasis
  parasites, cancer of bowel complicated by? 1678
  parasites, incidence of protozoa, relation to infant diarrhea, Mexico, 1360
  perforation caused by ascarides with resultant peritonitis, Turkey, 1454
  perforation in fetal life, meconium peritonitis follows, [Olnick & Hatcher] *582
  postoperative decompression by gastrostomy and Levin tube, [Gilchrist] *232
  roentgen diagnosis of regional ileitis, 199
  schistosomiasis in Sao Paulo, Brazil, 1358
  Surgery: See also Appendectomy
  surgery, anastomosis without clamps: use foam rubber sponge, [Berman] 1371—ab
  surgery, electrolyte imbalance after uretero-intestinal anastomosis, [Berglin] 281—ab
  surgery, resection and anastomoses in meconium ileus, [Montgomery] *225
  tuberculosis, x-ray diagnosis, [Berg] 1276—ab
  volvulus, complicating pregnancy, [Halperin & others] *1219
  Whipple's disease ,(intestinal lipodystrophy) and serum glycoproteins, [Story & Sagild] *312
INTOXICATION: See Alcoholism
INTRA-ARTERIAL
  Injection: See Injections
  Transfusion: See Blood Transfusion
INTRAMUSCULAR Injection: See Injections
INTRAVENOUS
  Clotting: See Phlebothrombosis; Thrombosis
  Injections: See Injections
INTUBATION: See Heart catheterization; Intestines
INTUSSUSCEPTION
  ileocecal, reduced by hydrostatic pressure with barium enema, [Girdany] 1567—ab
INVALIDS: See Disease, chronic; Patients
INVESTIGATORS: See Research
IODIDES
  eruption from using bromide and, 1392
IODINE
  in Blood: See Blood
  "iodocasein" in obesity, [Bertola] 285—ab
  radioactive iodinated serum albumin to study cerebrovascular permeability, [Ashkenazy] 86—ab
  radioactive iodinated serum albumin to study effect of cigarette smoke on peripheral vascular system, [Friedell] *897
  radioactive, to study abnormal physiology of *thyroid, Italy, 867*
  radioactive, tracer test, in diagnosis of thyroid diseases, [Barrett & others] *1414
  radioactive, treatment of hyperthyroidism, [Allen] 1071—ab
  radioactive, treatment of toxic goiter, [Seed] 89—ab; (in Paris) 1731
  sensitivity to contrast materials during excretory urography, 655
  treatment, relation to pregnancy after years of sterility, 1738
IQDOALPHIONIC Acid: See Acid
IODOCASEIN
  treatment of obesity, [Bertola] 285—ab
IODOPANOIC Acid: See Acid
ION TRANSFER
  lipoproteins studied with electrophoresis in atherosclerosis, Paris, 1551
IONIZING Radiation: See Radiation
IONS: See Cations
IONTOPHORESIS Ionization: See Ion Transfer
IPRONIAZID (Marsilid)
  vs. isoniazid, convulsant effects, [Reilly & others] *1317
IRGAPYRIN: See Phenylbutazone
IRIDOCYCLITIS
  acute, trypsin injection for [Innerfield & others] *597
IRON
  administration: which form is best tolerated by intestines? 1393
  deficiency, difficulty in treating simple anemia, 1082
  in vegetable juices, London, 1650
  intravenously injected, fate of, [Lintzel] 1076—ab
IRRADIATION: See Radiation; Radium; Roentgen Therapy; Ultraviolet Rays
IRRIGATION: See Intestines
IRRITANTS
  effect of pretreatment with, on resistance to concentrated croton oil, [Selye] *1209
ISCHEMIA
  Volkmann's: See Contracture
ISLANDS of Langerhans: See Pancreas
ISOBORNYL THIOCYANOACETATE (Thanite)
  Committee report on names for pesticides *820
ISONICOTYL HYDRAZONE
  of glycuronolactone, new antituberculosis agent, Paris, 1731
ISONIAZID (Isonicotinic Acid Hydrazid; Nydrazid; Niadrin; Rimiform; Pyrizdin; Tyvid)
  bacterial resistance to, effect of streptomycin, [U. S. Public Health Service] 1661—ab
  inhibitory action on tuberculin reaction, [Guallar Segarra] 287—ab
  N.N.R., (Niadrin of Endo) 332; (Zinadon of Keith-Victor) 332; (Panray) 921; (Nicozide of Premo) 1339
  Thorn's reaction after giving, [Marzo] 1379—ab
  toxic psychosis due to overdose, [Chu] 1668—ab
  toxicity: convulsant effects of, vs. iproniazid, [Reilly & others] *1317
  toxicity: death, [Scheibe] 1282—ab
  toxicity: toxic hepatitis with jaundice, [Randolph & Joseph] *38
  treatment, aerosolization for pulmonary tuberculosis, [Wagner] 1379—ab
  treatment alone and combined with streptomycin and PAS in pulmonary tuberculosis, [Mount] 1464—ab
  treatment of genital tuberculosis in woman, [Barns] 1482—ab
  treatment of lupus vulgaris, [Russell] *1670*—ab
  treatment of military tuberculosis and tuberculous meningitis, [Messmer] 1671—ab
  treatment of pulmonary tuberculosis, (Medical Research Council) 548; *876—ab;* [Véran] 1079—ab
  treatment of tuberculosis, (Finland) 181; (Paris) 263; (Sweden) 473
  treatment of tuberculous meningitis, (Turkey) 265; [García Díaz] 1277—*ab*
  treatment, orally and streptomycin intramuscularly in tuberculous meningoencephalitis, [Suárez] 287—ab
  treatment plus streptomycin in pulmonary tuberculosis, [Pitts & others] *886
ISONICOTINIC ACID HYDRAZIDES: *See* Iproniazid; Isoniazid
ISOPROPYL ALCOHOL
  poisoning (acute) from inhalation in tepid sponging of small boy, [Garrison] *317
ISOPROPYLARTERENOL (Aludrine)
  inhaling, to prevent postoperative atelectasis, [Palmer] 192—ab
ISOTONIC Solution of 3 Chlorides: *See* Ringer's Solution
ISOTOPES: See Radioactive Isotopes
ISRAEL
  foreign letter from, 471; 1256
  mission to, Ohio, 859
  Society of the History of Medicine and Science, new journal: *Koroth*, 260
ITALIAN
  Society for Obstetrics and Gynecology, meets in Rome, Sept. 21-24, 950
  Society of Cardiology, 866; 1452
  Society of Orthopedics and Traumatology, 71
ITCH: See Scabies
ITCHING: See Eczema; Pruritis
IVY Poison: See Rhus

J

JACKSON Infant Laryngoscope and Bronchoscope: See Asphyxia in newborn
JAPAN
  alopecia leprotica: relation to shaving scalp of newborn, [Cleve & Pruitt] *573
  honors Col. Hunter for spraying of irrigation ditches against snails, 1152
JAUNDICE
  effect of nitrogen mustard on liver, (reply) [Zimmerman] 108
  Epidemic (Homologous Serum): See Liver Inflammation
  icterogenous hepatitis with neurological syndromes, [Sterne] 1574—ab

JAUNDICE—Continued
  in newborn and incompatible blood groups, [Hoffbauer] 367—ab
  liver function tests, 607—ab
  obstructive, caused by duodenal ulcer, [Neiman] *141
  toxic, from aureomycin, [Bateman] 86—ab; (correction) 252
  toxic hepatitis with jaundice from isoniazid, [Randolph & Joseph] *38
JAWS: See also Teeth
  correction of micrognathia: newborn child has receded lower jaw, 1291
  fracture of mandible, high caloric fat emulsion for total feeding, [Kuhl] 1468—ab
  tumors, adamantinoma of mandible, 881
JEJUNUM
  postoperative decompression by gastrostomy and Levin tube, [Gilchrist] *232
  Reconstruction of Esophagus by Jejunal Transplant (film review), 965
  stricture from ingesting ammonia; complicated by severe potassium deficiency, [Chassin & Slattery] *134
  surgery, close partially gastric stump before making anastomosis, 484
JET
  injection, parenteral administration by, 532—E
  Transport: See Aviation
"JET BEADS": See Berries
JEWS: See Hebrew University; Israel
JITTER LEGS
  relief with quinidine sulfate, (reply) [Lowell] 200
JOBS: See Industrial Health; Physicians, positions open
JOHANSEN, F. A., retires, 956
JOHNS HOPKINS UNIVERSITY
  dean of medical faculty, appointed: Dr. Bard, 1153
  president: Dr. Reed, 1347; 1438
JOINT
  Commission on Accreditation of Hospitals, report of meeting, April 19, 1953, [Crosby] 825
  Committee of A.M.A.: See American Medical Association
  Committee on Hospital-Physician Relationships, 729; 731
JOINTS: See also Arthritis; under names of specific joints as Elbow; Hip; Knee; Sacro-Iliac Joint; Shoulder
  degenerative joint disease, gastric ulcer with massive hemorrhage after using phenylbutazone, [Krainin] *31
  degenerative joint disease, phenylbutazone treatment and water retention, [Johnston] 75—C
  degenerative joint disease, Primer on Rheumatic Diseases, *522
  disease, implant placental grafts and inject placenta extract, [Uranga] 1672—ab
  disease, vitamin B_{12} in arthrosis, Chile, 957
  Effusion into: See Hydroarthrosis
  loose bodies, Primer on Rheumatic Diseases, 30
  snapping in, 1084
  Tuberculosis: See Ar[illegible]
  tumors, Primer on [illegible]
JOURNALS: See also [illegible]; Newspapers
  Acta Psychotherapeutica, Psychosomatica et Orthopaedagogica, 173
  Archives published by A.M.A.: See American Medical Association journals (special)
  Armed Forces Medical Journal, Col. McShane appointed associate editor, 349
  Crippled Child, changes made in format, 1542
  Drug Topics, use of metric system by A.M.A. and others, 1045—E
  Home Life, A.M.A. resolution on "The Doctor Cartel, an Urgent Problem," 847
  Hygeia (Today's Health): See American Medical Association, Today's Health
  Index to: See American Medical Association, Quarterly Cumulative Index Medicus
  Journal de Gentique Humaine, 950
  Koroth, Israel, 260
  Life, watch it, 1142—E
  Minnesota Medicine, centennial number, 248; 249
  needed for Korea, 956
  needed for other countries, [Castle] 266—C
  Pageant, "How to Choose Your Doctor" 924
  reprints: journals should give address of author; running head carry date and volume, [Felton] 1261—C
  Revista Latino Americana de Cirugia Plastica, 464
  Today's Health: See American Medical Association
  Transplantation Bulletin, 860
  Tri-State Medical Journal, new publication, 860
  Trustee, A.M.A. resolution on, 844
  U. S. News and World Report's interview with P. R. Hawley, A.M.A. resolution on, 839; 841
  warning—magazine saleman, Colo., 1054
  Woman's Home Companion, "How Much Should Your Doctor Charge?" 924
JOURNÉES MÉDICALES, 1058; 1255
JUDD Lecture: See Lectures
JUDICIAL COUNCIL: See American Medical Association
JUICES: See Tomato Juice; Vegetables
JULY FOURTH: See Fourth of July
JUNIPER OIL
  how to obliterate odor of urine in house from cats, 200
JURISPRUDENCE, MEDICAL: See Medical Jurisprudence

K

KAHN TEST
  standard, specific record from 1937 to 1952, [Kahn] *1206
KAISER (Albert David) Prize: See Prizes
KALA-AZAR: See Leishmaniasis
KANSAS
  television experiment, (Committee article) [Schafer] *78, *554
KAPLAN Lecture: See Lectures
KAPOSI'S Eruption: See Chickenpox
KARTAGENER'S SYNDROME, 533—E
KELLOGG Foundation: See Foundations
KENDRICKS, EDWARD J., new commandant of school of aviation medicine, 546
KENT, L. S., death of first woman president of Oregon State Medical Society, 855
KENTUCKY
  virus from poliomyelitic spinal cord, [Steigman & others] 1066—C
KENYA Flowers: See Pyrethrum
KERATITIS
  parenchymatous, treated with cortisone, Turkey, 1455
KERATODERMA: See Keratosis
KERATOSIS
  Nigricans: See Acanthosis nigricans
  pilaris, vitamin A and D for, Turkey, 182
  seborrheic, treated with benoquin, [Lerner & Fitzpatrick] *577
KERNICTERUS
  prematurity and, [Govan] 1278—ab
KETOSIS: See also Acidosis
  severe, with spontaneous remission of diabetes mellitus, [Cheng & others] *1531
  treatment of epilepsy, [Putnam & Rothenberg] *1400
17-KETOSTEROIDS
  in Urine: See Urine
KHELLIN (Visammin)
  crystalline, in coronary insufficiency, [Lemmerz] 1476—ab
KIDNEYS: See also Ureters; Urinary System
  artificial, hemodialysis in treatment of barbiturate poisoning, 822—E
  artificial, short-term continuous transperitoneal dialysis, [Legrain] 91—ab
  artificial, trials and results, [Bartrina] 286—ab
  blood flow in toxemia of pregnancy, [Bucht] 1382—ab
  calculi, giant calculus weighing 415 gm., [Landes] *514
  caluculi, prevention; also treatment, 1082
  cancer, x-ray sensitivity, [Heinrich] 99—ab
  cysts and pregnancy, (reply) [Marshall] 108
  disease, dextran for nephrotic edema, [Olive] 1376—ab
  disease (diabetic) revealed by biopsy and function tests, [Brun] 1575—ab
  disease, nephrotic syndrome in child, 881
  disease, potassium in anuric tubular nephropathy, [Dérot] 978—ab
  disease, stain (Sudan III) for lipid bodies in urinary sediment, [Parrish & Alpert] *1713
  dynamics, magnesium sulfate effect on, in acute glomerulonephritis in children, [Harris] 1174—ab
  endometriosis, [Blum] 283—ab
  Extract: See Rennin
  function and structure, effect of back pressure on, [Lapides] *1305
  function better when patient is at rest or in recumbent position? 1291
  function during general anesthesia and operation, [Papper] *1686
  function, effect of focal oropharyngeal infection and renal function, Italy, 1452
  Glomeruli: See also Nephritis, glomerular
  glomeruli filtration in toxemia of pregnancy, [Bucht] 1382—ab
  inflammation: See Nephritis
  injuries, [Suermondt] 1571—ab
  insufficiency (acute) after trauma to abdominal wall, [Gelfand & Shapiro] *319
  insufficiency, acute failure in crush injuries, 1340—E
  insufficiency, osseous changes in, [Davis] 1377—ab
  "lethargic kidney," [Terruzzi] 560—ab
  pathogenesis of essential hypertension, 1435—E
  Pelvis: See Kidneys, tumors; Pyelonephritis
  Sclerosis: See Nephrosclerosis, arteriolar
  tuberculosis, chemotherapy, [Blystad] 97—ab
  tuberculosis, clinical management, [Rehn] 976—ab
  tumors, 1689—ab
  tumors of renal pelvis, [Higgins] 359—ab
"KILLED in Action": See Korean War, Heroes
KILPHENE: See Toxaphene
KILPHOS: See Parathion
KIMBLE Methodology Research Award: See Prizes
KNAPP Medal: See Prizes
KNEE
  arthrosis, and venous circulation disturbances, [Robecchi] 192—ab
  granuloma after swimming pool abrasions, [Rees & Bennett] *1606
KNEE—Continued
  Surgical Approaches to Knee Joint (film review), 272
  traumatic effusions, treatment, [Millard] 766—ab
  tuberculosis (synovial), effect of streptomycin in, [Smith & Bailey] *792
KNIFE: See Razors
KOCH'S Bacillus: See Tubercle Bacillus
KODAK Pty. Ltd. finances medical research, Australia, 624
KOLLIDON: See Polyvinylpyrrolidone
KOREA
  alopecia leprotica: relation to custom of shaving scalp of newborn, [Cleve & Pruitt] *573
  A.M.A. resolution on expression of appreciation to physicians of, 854
  diathermy machines needed in; states American-Korean Foundation, 1350
  Korean Medical Student Association in Japan organized, 540
  medical books for, 950; 956; 1062
  medical help for, [Rusk] 476—C
  Rehabilitation Mission to Korea for the American-Korean Foundation, 174; [Rusk] 724
  U. N. Korean Reconstruction Agency, [Rusk] 476—C
KOREAN WAR, 1950-
  battle injuries and wounds, 1448
  coronary disease in U. S. soldiers killed in action in, [Enos & others] *1090
  disease: greatest enemy of American soldier in, 1448
  intramedullary fixation of femoral fractures in, [Carr] 276—ab
  middle lobe syndrome from broken denture in esophagus in soldier, [Valle & Cloutier] *812
  neuropsychiatric disorders and treatment, 1449
  nonbattle injuries, 1448
  rapid air evacuation and mobile army surgical hospital, 1449
  38th Parallel Medical Society meeting, 179
  3 years of medical service in Korea, 1448
  wounded with vascular injuries, blood vessel grafts for, [Cooke] 190—ab
  wounds of intrathoracic trachea, repair, [Hanner] 1469—ab
KOREAN WAR, HEROES
  Richards (A. C.) Jr., died in helicopter crash, 1356
  Standerfer (J. B.), killed in action, 67
KORITZ, LLOYD T., research volunteer, honored by Walter Reed Society, 944
KOROTH: See Journals
KORTRIGHT INDUSTRIES to sell fish lens protein, *708
KREISELMAN Infant Resuscitator: See Asphyxi in new born
KRESGE Foundation: See Foundations
KVE-M Test: See Tuberculin
KWELL: See Benzene Hexchloride, gamma
KYPHOSCOLIOSIS: See Spine curvature

L

LABOR: See also Abortion; Cesarean Section; Episiotomy; Hospitals, maternity; Infants, Newborn; Maternity; Obstetrics; Pregnancy; Puerperium
  Anesthesia in: See Anesthesia
  Complications: See also Eclampsia
  complications: circumvallate placenta, [Paalman] 874—ab
  complications: fracture-dislocation of pelvis, injury to lumbosacral trunk and first sacral nerve root, [Urist] *127
  complications: hypertensive women subjected to sympathectomy, [Milliez] 978—ab
  complications: severe cervical laceration, 375
  complications: spontaneous rupture of uterus, Turkey, 1363
  conduct of, Chile, 547
  Death during or after: See Maternity mortality
  forceps, outlet forceps delivery considered part of normal obstetrics? 292
  forceps, (trial) 993—ab
  induced by hyaluronidase, [Pellizzari] 1671—ab
  induction (elective) justifiable? [Willison] 1266—ab
  induction in Rh-negative mother, 295
  normal spontaneous, in myocardial infarction, [Brock & others] *1030
  oxytocin infusion intravenously in, [Kaufman] 558—ab
  penicillin given during and preceding, passes through placenta, [Raspe] 977—ab
  Postpartum Complications: See Puerperium
  Premature: See Infants, premature
  presumptive amniotic fluid infusion, [Reid & others] *227
  uterine inertia, [Hepp] *894
  version, blade rotation of occiput, 296
LABOR (industrial): See Industrial Accidents; Industrial Diseases; Industrial Health; etc.
LABOR UNIONS: See Industrial Trade Unions
LABORATORIES: See also under specific firm names as Lederle; Miles; White
  acquired anthrax in bacteriologist, 1084
  Baird Memorial Research, dedicated, N. Mex., (picture) 536
  courses in fluoride analysis, 1648
  data and clinical judgment, 708—ab

LABORATORIES—Continued
  departments in hospitals, statistics, *155
  diagnosis of leptospirosis, [Gochenour] 1660—ab
  diagnosis of rabies, course in, by USPHS, 68
  Gerald B. Webb Memorial Laboratory, Colo., 943
  procedure to determine need for transfusion and amount of blood required, 1585
  procedures, errors in, [Henry & Berkman] 1166—C
  refresher training courses, schedules, 1162
  S. Rudolph Light Laboratory for Surgical Research, at Vanderbilt U., 250
  Technicians: See Technologists
  tests in incomplete abortion, 776
LABORIT METHOD: See Cold, therapeutic use
LACTATION: See Milk, human
LACTOFLAVIN: See Riboflavin
LAENNEC Prize: See Prizes
LAHEY, FRANK H.
  A.M.A. past president, address on National Fund for Medical Education, 853
  death; portrait, 1060
LAME: See Crippled
LANCETS
  disinfection of blood contaminated, (reply) [van Rooyen] 882
LANE (Carol) Award: See Prizes
LANGERHANS, Islands of: See Pancreas
LANGUAGE: See Terminology
LAPAROTOMY: See Abdomen surgery
LARYNGOSCOPY
  direct, use and abuse, [Myerson] *17
  Jackson laryngoscope to resuscitate asphyxiated newborn, [Beattie & Zwerling] *216
LARYNX: See also Otolaryngology
  cancer. 383—ab
  cancer, late development in irradiated areas, [Hollnger] 1072—ab
  swabs, cultivate Koch's bacillus from, [Saenz] 1385—ab; [Chaves] 1661—ab
LASKER Award: See Prizes
LATIN AMERICAN: See Pan American
LATRINES: See Toilet Facilities
LAURON: See Aurothioglycanide
LAVAGE: See Stomach
LAVATORIES: See Toilet Facilities
LAW: in relation to Physician: See Medical Jurisprudence
LAWS AND LEGISLATION
  Doctor Draft Law: See Medical Preparedness
  federal, A.M.A. Committee action on, 1046; 1240
  federal, A.M.A. views on S. 106 and S. 1514; letter from Dr. Lull, 54
  federal, weekly summary, 169; 243; 336; 460; 534; 717; 826; 924; 1051; 1151; 1244; 1344; 1538; 1637; 1719
  Harrison Narcotic Act: See Harrison
  state, weekly summary, 54; 170; 243; 336; 460; 534; 717; 826; 924; 1052; 1151; 1245; 1345
LAXATIVES: See Cathartics
LEAD
  abortions from exposure to, 1494
  encephalopathy (acute), dimercaprol in, [Deane] 1272—ab
  line examined in ultraviolet light, [Dangl] 1180—ab
  Pencils: See Pencils
LEAGUE of Nations: See United Nations
LECTURES: See also under Book Reviews at *end of letter B*
  Blatt Memorial, 1539
  Cutter, on malaria, 59
  Freedman (Joseph), 60
  Freud Anniversary, 60
  Gudakunst (Don W.) Memorial, 171
  Harvey (first)
  Hektoen Memorial (first), 171
  Hutchings Memorial, 1639
  Judd (E. Starr), 59
  Kaplan, 249
  Minot, [Keefer] *1397
  Morris (Roger) Memorial, [Bean] *1293
  New England Center, 536
  Newell (Quintman U.) Memorial, 172
  Phi Delta Epsilon Lectureship, 615
  Schoenbach (Emanuel B.) first annual, 172
  Skinner Memorial, 1250
  Stillians, 171
  Stubbs Oration in surgery, 1351
  Sweet (Clifford) Lectureship, 246
  Thompson, 339
  Zeit (F. R.) Memorial, 944
LEDERLE LABORATORIES
  meeting on infectious diseases sponsored by, W. Va., 1349
LEE-WHITE COAGULATION TIME
  presumptive amniotic fluid infusion with resultant postpartum hemorrhage due to afibrinogenemia, [Reid & others] *227
LEFT HANDEDNESS
  training children who are left-handed, 1584
LEG: See Legs
LEGAL MEDICINE: See Laws and Legislation; Medical Jurisprudence; Medicolegal Abstracts at end of letter M
LEGAL RESPONSIBILITY: See Malpractice
LEGISLATION: See Laws and Legislation
LEGS: See also Extremities; Femur; Foot; Hosiery; Knee; Hip
  Amputation: See Amputation
LEGS—Continued
  Artificial: See Limbs, Artificial
  Fractures: See under names of specific bones as Femur
  jitter legs, relief with quinidine sulfate, (reply) [Lowell] 200
  pneumatic suction applied to, to induce hypotension in neurosurgery,, [James] 768—ab
  Ulcers: See Ulcers; Varicose Veins
LEISHMANIASIS
  americana in Mexico, 1360
LEISURE CORNER
  hobbies; physicians who have attained fame in nonmedical fields, *964
  medical stamps, *1364; [Gebhard] 1732—C
LEMON JUICE
  James Lind and treatment of scurvy, 1331—ab
LENS, CRYSTALLINE
  fish lens protein injection for cataract dangerous, [Breinin] *698; (National Research Council report) *707; 710—E
  mercurialentis in thermometer maker, [Hunter] 1380—ab
  Opacity: See Cataract
  retrolental fibroplasia, [Begg] 977—ab; [Braendstrup] 1282—ab
  retrolental fibroplasia, gross visual defects due to, [Schlesinger] 1174—ab
LENSES: See also Glasses
  telescopic, developed by Feinbloom to improve vision, 1292
LENTIGO: See Freckles
LEPROSY
  complications: tuberculosis, [Gray] 1665—ab
  immunologic relation to tuberculosis, Brazil, 547
  in Afghanistan, 1362
  incidence, U. S. and elsewhere, 1056
  International Congress of (6th) 1058
  Medical Association of Isthmian Canal Zone, [Nelson] 1652—C
  National Leprosarium, (Dr. Johansen retires as director after 29 years) 956; (Dr. Eddie M. Gordon appointed head) 1162
  transmission, alopecia leprotica: relationship to; custom of shaving scalp of newborn, [Cleve & Pruitt] *573; [Reiss] 1652—C
  treatment, diazotized argentic sulfone, [Tzanck] 978—ab
LEPTOSPIROSIS
  diagnosis, elevated blood urea in, 1584
  diagnosis (laboratory), [Gochenour] 1660—ab
LERICHE SYNDROME
  resection of aortic bifurcation, [Cahen] 1570—ab
LEUKEMIA
  acute, combined steroid hormones and folic acid antagonists for, [Magnin] 364—ab
  acute, in twins, [Cooke] *1028
  lymphocytic chronic, survival for 29 years in, [Marlow & Barlett] *1033
  preleukemic acute human leukemia, [Block & others] *1018
  report on, Turkey, 1363
  research on, Calif., 1539
  survey of 647 cases, [Gauld] 1076—ab
  terminal, in myeloid metaplasia, [Long & others] *1619
  treatment, radioactive isotopes, International Congress discusses Spain, 627
  treatment, triethylene melamine, [Lenti] 370—ab
  treatment, triethylene melamine vs. nitrogen mustard, [Bond] 1655—ab
LEUKOCYTES
  Count: See also Agranulocytosis; Leukemia; Mononucleosis, Infectious
  count (differential) in agranulocytosis before, during and after corticotropin therapy, [Mc Cluskey] *233
  Eosinophilic: See Eosinophils
  Pelger-Huët familial anomaly of, [Yamasowa] 1371—ab
  viability and life span of tranfused leukocytes, [Adorf] 283—ab
LEUKODERMA: See Vitiligo
LEUKOTOMY: See Brain surgery
LEVARTERNOL BITARTRATE (Levophed)
  treatment of acute hypotensive states, [Livesay] 358—ab
LEVEROOS, EDWARD H., appointed director, Division of Hospitals and Graduate Education at A.M.A., 1244
LEVIN TUBE
  passed into stab wound of stomach and intestine, to induce postoperative decompression, [Gilchrist] *232
LEVINSON Foundation: See Foundations
LEVO-DROMORAN Tartrate: See Levorphan Tartrate
LEVOPHED: See Levarterenol
LEVORPHAN TARTRATE (Levo-Dormoran Tartrate)
  name accepted by Council, 709
LEVULOSE
  in Blood: See Blood
LIABILITY: See Malpractice
  Insurance: See Insurance, malpractice
LIBRARIANS: See Library; Medical Record Librarians
LIBRARY: See also Books; Journals; Newspapers
  Columbia University plan to erect, 200th anniversary, (pictures) 250
  Griffis Medical, fund at Cornell, 946
LIBRARY—Continued
  International Congress on Librarianship (first) London, July 20-25, 1156
  Medical Library Association, meets in Salt Lake City, 618
LICENSURE: See also State Board
  candidates examined, 1948-1952, *431
  candidates examined by state boards, *416; *420
  candidates licensed by reciprocity and endorsement, 1952, *425; *426; *428; *429
  candidates representing additions to profession, *427; *432
  combined results of examinations of state boards and National Board, 1952, *421; *422
  Committee for Study of Relations Between Osteopathy and Medicine, 734; (Reference Committee reports) 739; 740
  failures before state boards by licentiates, *423
  failures by graduates of existing approved medical schools 1952, *421; 422
  fees, 437; 439
  foreign-trained physicians, *438; 441; 442; 448; 456—E
  foreign-trained physicians examined according to school, 1952, *442
  foreign-trained physicians, failures before state board, *423
  foreign-trained physicians, status of requirements *441
  National Board of Medical Examiners, *421; *452; 456—E
  National Board of Medical Examiners, certificates (1952) basis for, *455
  number of licenses issued, 1935-1952 *420
  number of licenses issued, 1952, *415; 456—E
  of osteopaths, scope, 737
  professional educational requirements by state boards, *436; 437
  reciprocity and endorsement policies of medical licensing boards, *424; 425; 426
  registration (annual) required, *437; *439
  registration of graduates of approved medical schools and others, 1922-1952, *432; *434
  registration of graduates of unapproved schools 1948-1952, *433; 435
  registration of physicians, 1904-1952, *430; *433
  requirements for interns and residents in hospitals, *436; *438
  schedule of written examination dates, and issuance of licenses by reciprocity or endorsement of credentials, *436; 439
  Statistics Number, May 30 *415; 456—E
  temporary permits and limited licenses, *436; 439
  U. S. government credentials, basis for, *437
LICHEN
  ruber planus, lichen simplex; lichen scrofulosus, vitamin A and D therapy, Turkey, 182
  simplex, role of emotions in dermatoses, [Frumess] *1420
LICORICE: See Glycyrrhiza
LIDS: See Eyelids
LIE DETECTOR
  test: reliability, 373
LIFE: See also Death
  Duration: See also Old Age
  duration, long survival in malignant melanoma, [Galgano] *518
  duration, overweight and longevity; mortality of all overweight persons, 1084
  duration, survival for 29 years in lymphocytic leukemia, [Marlow & Bartlett] *1033
  duration, woman lives 17 years with Hodgkin's disease, Paris, 182
  expectancy of children with congenital heart disease, [MacMahon] 1477—ab
  Insurance Medical Research Fund: See Foundations
  records (whole), 711—E
  Stress: See Stress
LIFE (magazine): See Journals
LIGATURE: See Sutures
LIGHT: See Photoelectric
LIGHTING
  fluorescent, alopecia not caused by, 296
LIMBS: See Extremities
  Phantom: See Amputation
LIMBS, ARTIFICIAL
  football bladder inserted in, then inflated for lymphostatic verrucosis, [Loewenthal] 475—C
LIND, JAMES
  bicentenary of his "Treatise on Scurvy," 1258; 1331—ab
LINDANE: See Benzene Hexachloride, gamma
LINEA cutis distensa: See Stria cutis distensa
LIP. See Lips
LIPIDS
  serum cholesterol, lipid phosphorus, and Sf 12-20 lipoproteins, [Katz] *357—ab*
  stain (Sudan III) for, in urinary sediment, [Parrish & Alpert] *1713
LIPODYSTROPHY
  after insulin injection, [Paley] 1562—ab
  intestinal, *Whipple's disease*, and serum glycoproteins, [Storey & Sagild] *312
LIPOIDS: See Necrobiosis lipoidica
LIPOMA
  mediastinal, simulating cardiac enlargement, [Gottlieb & others] *908

LIPOPROTEINS
  in Blood: See Blood
  Sf 12-20 lipoproteins in hypertension, diabetes and coronary disease, [Katz] 357—ab
LIPS
  cheilitis from cinnamon (cassia) oil in tooth paste, [Laubach & others] *404
  lesions of mucocutaneous junctions in pyridoxine deficiency, [Ramalingaswami] 361—ab
LIQUOR, Alcoholic: See Alcohol; Alcoholism
LITERATURE: See also Books; Journals; Newspapers; *Terminology*
  American Medical Writers Ass'n., 1723
LITHIASIS: See Calculi (cross reference)
LITTLE'S *Disease*: See Paralysis, cerebral
LIVER: See also Bile Ducts; Biliary Tract
  biosynthesis of cholesterol, 1435—E
  Blood Supply: See Arteries, hepatic; Veins, *hepatic*
  cancer (primary), hepatic tests and clinical findings in, [Galluzzi & *others*] *15
  cancer (primary), incidence, Mexico, 1259
  cirrhosis, endometrial carcinoma and, [Brewer] 278—ab
  cirrhosis (Laennec's), diabetes melitus cured by, [Caroli] 653—ab
  cirrhosis, liver extract in, [Schouten] 1736—ab
  cirrhosis, packed red blood cells as source of protein for parenteral use, [Calloway & Mowrey] *777
  cirrhosis, portacaval shunt operation with vein grafts, [Theron] 771—ab
  cirrhosis with ascites, ligate hepatic and splenic arteries in, [Rienhoff & Woods] *687
  damage, how soon will tests indicate? 1498
  diabetes, types of hyperglycemia, 376
  Disease: See also Jaundice
  disease, procaine hydrochloride esterase test in, [Hazard] 1078—ab
  dysfunction, trichinosis with, [Kushlan] *221
  Extract: See Liver preparations
  fatty degeneration after aureomycin therapy, [Paglieì] 1180—ab
  function tests, 607—ab
  function tests, aureomycin effect on, [Faloon] 1469—ab
  function tests, evaluation in primary hepatic cancer, [Galluzzi & others] *15
  function tests in organic nervous diseases, [Faust] 1178—ab
  function tests, near fatal reaction to sulfobromophthalein, [McVay] *1622
  function tests, persistent positive cephalin-cholesterol flocculation, 295
  function tests, results of sulfobromophthalein test affected by multiple transfusions? 198
  histology, effect of aureomycin, [Faloon] 1469—ab
  in sickle cell anemia, [Green] 479—ab
  Inflammation: See Liver, toxic hepatitis; Liver Inflammation *following*
  Inflammation (Chronic): See Liver cirrhosis
  iron deposited in, after intravenous injection, [Lintzel] 1076—ab
  necrosis, jaundice produced by aureomycin, [Batem[illegible] 52
  nitrogen [illegible] *400
  nitrogen [illegible] o Feb. 28 issue)
  preparations, extract in liver cirrhosis, [Schouten] 1736—ab
  preparations, minimum amount of extract needed for pernicious anemia, 1586
  roentgen study, by injecting contrast medium into aorta, [Rigler] 1376—ab
  toxic hepatitis from methimazole, [Rosenbaum & Reveno] *27
  toxic hepatitis with jaundice from isoniazid, [illegible] *38
  [illegible] (infectious hepatitis; [illegible] disease, nitrogen mustard in, [Harris] *400
  complicating pregnancy, [Roth] 385—ab; 1585
  hepatitis probably from plasma transfusion, not from poliomyelitis virus in blood of donor, 373
  icterogenous, with neurological syndromes, [Sterne] 1574—ab
  in children, National Congress of Pediatrics discuss, Chile, 351
  incidence, U. S., 340
  prevention, distribution of supplies of gamma globulin, (A.M.A. Committee report) 832
  prevention, gamma globulin distributed by USPHS, 50—E; 68
  prevent[illegible] prevent serum hepat[illegible] 56
  serum [illegible] plasma, [Albrec[illegible] *1423
  serum hepatitis from pooled irradiated dried plasma, [Murphy & Workman] *1421
  severe *p*-aminosalicylic acid hypersensitivity simulate, [Lichtenstein & Cannemeyer] *606
  treatment, convalescent gamma globulin fails to protect against homologous serum hepatitis, [Drake & others] *690
  viral hepatitis: infectious hepatitis (hepatitis A) and serum hepatitis (hepatitis B) are different entities, 612—E
LIVING: See Life
  Cost of Living Index: See Consumer Price Index
LOA LOA: See Filariasis
[illegible]
  [illegible] Brain surgery
[illegible] Transorbital: See Brain surgery
LOCKJAW: See Tetanus
LOCOMOTOR ATAXIA: See Tabes Dorsalis
LONGEVITY: See Life duration; Old Age; Physicians, *veteran*
LOS ANGELES
  County Medical Ass'n. medical care for dependents of servicemen, (report by A.M.A. Council) 758
LOTION: See Calamine
LOUISIANA
  State University, eyes given for ophthalmic research, 945
LOVELACE Foundation: See Foundations
LOW BLOOD PRESSURE: See Blood Pressure, low
LOZENGES: See Troches
LUCAS SIERRA Foundation: See Foundations
LUCKHART, ARNO B., honored by anesthesiologists, 944
LULL, GEORGE F.
  letter from, on A.M.A. views on S. 106 and S. 1514, 54
  letter to congressional committees on fireworks, Indian hospitals, factory inspection, 168
LUMBAR
  Block: See Nervous System, Sympathetic
  Puncture: See Spinal Puncture
  Sympathectomy: See Sympathectomy
LUMBOSACRAL JUNCTION
  roentgen comparison of patients with and without backaches, [Splithoff] *1610
LUMBOSACRAL PLEXUS
  injury in obstetrics fracture-dislocation of pelvis, [Urist] *127
LUMBOSACRAL REGION: See Pilonidal Sinus
LUMINAL: See Phenobarbital
LUNGS: See also Bronchus; Pleura; Respiratory System
  abscess, resection for, [Hood & others] *1185
  abscess, trypsin injection for, [Innerfield & others] *597
  biopsy techniques in intrathoracic lesions, [Storey] 1268—ab
  blastomycosis, resection for, [Buechner] 1560—ab
  Blood Supply: See Arteries, pulmonary
  cancer (bronchogenic), early diagnosis, [Dighiero] 95—ab
  cancer (bronchogenic), exploratory thoracotomy in, [Bernatz & Clagett] *379
  cancer (bronchogenic), repeated cytological tests of sputum, [Hansen] 288—ab
  cancer, cytological tests for, Denmark, 1163
  cancer, in physicians, role of smoking, [Wynder] 1072—ab
  cancer, pains in extremities as only early diagnostic sign, [Rugieri] 1280—ab
  cancer (primary alveolar cell), [Fisher] 761—ab
  cancer, recovery after *pneumonectomy* for, Turkey, 1362
  cancer, resection for, [Hood & others] *1185
  cancer, surgical treatment, 10 years experience, [Diaz] 1175—ab
  Collapse: See also Pneumothorax; Pneumothorax, Artificial
  collapse, acute atelectasis, trypsin (Tryptar) inhalations in, [Unger & Unger] *1109
  [illegible] is after abdominal [illegible] -ab
  [illegible] rative atelectasis: [illegible] sion inhaling iso- [illegible] 192—ab
  [illegible] [Jepsen] 1489—ab
  [illegible] oconiosis
  disease (chronic), heart in, [Fulton] 979—ab
  disease, diagnosis, Italy, 753
  disease, exploratory thoracotomy in, [Bernatz & Clagett] *379
  disease, segmental postural drainage in, [Kane] 1269—ab
  disorders in welders, [Charr] *1520
  edema (acute) after giving penicillin, [Strano] 1281—ab
  edema (acute) in pregnancy, [Goldmann] 558—ab
  edema, withdraw blood from heart in, [Provenzale] 1384—*ab*
  efficiency, gaseous nitrogen elimination as *measure of*, [Boothby & *others*] *1000
  Embolism of Pulmonary Artery: See Embolism, pulmonary
  farmer's, [Fuller] 1387—ab
  Fibrosis: See Pneumonoconiosis
  Hemorrhage: See also Hemoptysis
  hemorrhage fatal *in erythroblastosis* fetalis; deficiency of prothrombin and fibrinogen, [Rice] 277—ab
  Hyperventilation: See *Respiration*
  infarction (complete and incomplete), roentgen aspects, [Smith] 1558—*ab*
  Infection: See also Bronchopneumonia; Influenza; Pneumonia; *Tuberculosis* of Lung
  infection [illegible] hydriodide of [illegible] -ab
  Mapp[illegible] at end of letter M
  middle lobe syndrome from broken denture in lower esophagus, [Valle & *Cloutier*] *812
  pathology, cor pulmonale in New England, 1925 vs. 1950, [White] *303
LUNGS—Continued
  Silicosis: See Pneumonoconiosis
  stasis of cardiac origin, effect of mersalyl, [Marquardsen] 1489—ab
  surgery, recovery after pneumonectomy for cancer, Turkey, 1362
  surgery, resection for blastomycosis, [Buechner] 1560—ab
  surgery, resection for bronchiectasis, 1536—E
  surgery, resection for pulmonary tuberculosis, [Bickford] 194—ab; [Young] 366—ab
  surgery, resection for solitary circumscribed lesions in 156 cases, [Hood & others] *1185
  surgery, resections, report on 38 cases, Brazil, 1358
  Tuberculosis: See Tuberculosis of Lung
  tumors, long survival in malignant melanoma, [Galgano] *518
  tumors, resection for, [Hood & others] *1185
  Vital Capacity: See Vital Capacity
  volume, in absence of main branch of pulmonary artery, [Steinberg & others] *1216
LUPUS
  swimmer's [Rees & Bennett] *1606
  [illegible] sa
  [illegible] treatment,
  disseminated, 885—ab; [Jessar] 1465—ab
  disseminated, hematological aspects, Brazil, 1358
  disseminated, Primer on Rheumatic Diseases, *412
LUTHERAN Medical Mission, journals needed for other countries, [Castle] 266—C
LYE: See Sodium hydroxide
LYING: See Lie Detector
LYMPH
  lymphostatic verrucosis of lower limb amputation stump: treated by pressure bandage, [illegible] C
[illegible] Lymphatic System
  [illegible] See also Mononucleosis, Infectious
  biopsy techniques in intrathoracic lesions, [Storey] 1268—ab
  cat scratch disease and Parinaud's oculoglandul[illegible]
  cervical [illegible] ococcic infectic[illegible]
  cervical [illegible] subluxation of atlanto-axial articulation, [Stein & others] *131
  cervical lymphadenitis, torticollis due to, 1292
  lymphoid hyperplasia (benign), tracheal obstruction from, [Olson] 1561—ab
  tuberculosis of cervical nodes, surgical treatment, [Kaiser] 979—ab
  tuberculous adenitis, trypsin injection for, [Innerfield & others] *597
  tuberculous [illegible] pyrazinamide [illegible] [Haxthausen] [illegible] 451—ab
[illegible] Disease
[illegible] NEREAL
  treatment, aureomycin, [Ribas] 368—ab
  treatment, trypsin injection, [Innerfield & others] *597
LYMPHOGRANULOMATOSIS: See Hodgkin's Disease
LYMPHOPATHIA Venerea: See Lymphogranuloma, Venereal
LYMPHOSARCOMA
  treatment, triethylene melamine, [Lenti] 370—ab

M

McCARTHY Prize: See Prizes
McCORMICK, EDWARD J.
  A.M.A. President's address: American medicine's report to nation, *485; 726
  A.M.A. President, monthly message, (First: June) 824; (July) 1239; (August) 1718
  honored, by Ohio General Assembly, 1247
  inauguration of A.M.A. President, 53
MACHINE: See Apparatus
MACKOTHION: See Parathion
MAGAZINES: See Journals
MAGNAMYCIN: See Carbomycin
MAGNESIUM
  silicate spread over myocardium in coronary disease, [Thompson & Plachta] *678
  sulfate in acute glomerulonephritis in children, [*Harris*] 1174—ab
  sulfate injections; clinical use; pharmacologic [illegible] gluconate, 373
  [illegible] Hydroxide Mix[illegible]
  trisilicate treatment of kidney stones, 1082
MAGNET
  powerful, patented: surgeon's helper to locate needles, clips, etc, [Duffy] 1067—C
MAICO "Top Secret" Model L Hearing Aid, 47
MAIL: See Postage Stamps
MAL del Pinto: See Pinta
MALARIA
  campaign against, Mexico, 959
  Cutter Lecture on, Mass., 59
  International Congresses of, 465
  Plasmodium, varieties of, Mexico, 1360
MALE: See Spermatozoa
  Hormone: See Androgens

- MALFORMATIONS: See Abnormalities
- MALIGNANCIES: See Cancer; Sarcoma; Tumors, malignant
- MALLORY-WEISS SYNDROME
  - defined, 1292
- MALNUTRITION: See Nutrition
- MALONEY Test: See Diphtheria
- MALPRACTICE: See also Medicolegal Abstracts at end of letter M
  - Grievence Committee: See Societies, Medical
  - Insurance: See Insurance, malpractice
  - medical defendent, London, 1453
- MALTA FEVER: See Brucellosis
- MAMMARY: See Breast
- MANDIBLE: See Jaws
- MANTOUX Test: See Tuberculin
- MARCH OF DIMES: See Poliomyelitis
- MARICOPA Academy of Medicine, (picture) Ariz., 744
- MARIE-Strümpell Arthritis: See Spine arthritis
- MARIHUANA: See Cannabis Sativa
- MARLATE: See Methoxychlor
- MARRIAGE: See also Contraception; Maternity; Paternity; Pregnancy
  - of cousins, cause of intrauterine fetal death? *1497*
  - of epileptics, [Lennox & Markham] *1692
  - skin pigmentation in intermarriage, 1393
- MARROW: See Bone Marrow
- MARSILID: See Iproniazid
- MARTIN, WALTER B.
  - honored, Va., 1248
  - President-elect of A.M.A., (biographical sketch; portrait) 613—E; (address] 856
  - statement before U. S. House Committee on income tax deduction of educational expenses, 1150
  - statement before U. S. House Subcommittee on Hospitals of Committee on Veterans Affairs, 1342
- MASK: See also Shield
  - modified, for giving ether, air and oxygen simultaneously, [Stodsky] *1714
- MASSACHUSETTS
  - diabetes in Oxford, 4 year progress study, [Wilkerson & Krall] *1322
- MASSAGE: See Heart
- MASTECTOMY: See Breast surgery
- MASTOIDECTOMY
  - indications for, 1584
- MATCHING PLAN: See Interns and Internships
- MATERNAL MILK: See Milk, human
- MATERNITY: See also Labor; Milk, human; Parents; Pregnancy
  - Emergency Maternity and Infant Care Program: See Emergency
  - Hospitals; Service; Wards: See Hospitals
  - mortality of obstetric origin, Chile, 547
- MATRIMONY: See Marriage
- MEAD Home Treatment Stimulator, Model S-1, 47
- MEALS: See Barium meals
- MEASLES
  - encephalitis after, respiratory difficulty in, [Weinstein] 1560—ab
  - encephalomyelitis, [Fox] 1459—ab
  - epidemic in Southern Greenland, [Christensen] 1075—ab
  - gamma globulin distributed by U.S.P.H.S., 50—E; 68
  - German: See Rubella
  - in infants, 985
  - in pregnancy: effect on fetus, [Kaye] 85—ab
  - 3 day, or roseola infantum, 1395
  - treatment, supplies of gamma globulin, A.M.A. Committee report, 832
- MEASURES: See Weights and Measures
- MEAT: See Trichinosis
- MEBARAL: See Mephobarbital
- MECKLING COUNTY, NORTH CAROLINA
  - opinion survey and inventory of medical care, personnel, facilities, [Welton] *1145
- MECONIUM
  - ileus; additional case reported, [Blegen & others] 1261—C
  - ileus with pancreatic cystic fibrosis; successful management, [Montgomery] *225
  - peritonitis after perforation of intestines in fetal life, [Olnick & Hatcher] *582
- MECOSTRIN: See Dimethyl-tubocurarine Chloride
- MEDALS: See Prizes
- MEDIASTINUM
  - biopsy techniques in intrathoracic lesions, [Storey] 1268—ab
  - emphysema (traumatic), sounds audible in, [Bean] *1296
  - gastric cysts, [Matheson] 94—ab
  - tumors, lipoma, simulating cardiac enlargement, [Gottlieb & others] *908
- MEDIATION Committee: See Societies, Medical
- MEDICAL ARTICLES: See Journals
- MEDICAL ASSOCIATION: See also American Medical Association; Societies, Medical
  - *of Isthmian Canal Zone* [Nelson] 1652—C
- MEDICAL AWARDS: See Prizes
- MEDICAL BOOKS: See Books; Library; Book Reviews at end of letter B
- MEDICAL CARE: See Medical Service
- MEDICAL CENTER: See also Health center
  - Mount Sinai Hospital, Chicago (picture) 616
  - New York Hospital-Cornell Medical Center, Dr. Hinsey to direct, N. Y., 1439
  - University of Arkansas in Little Rock, (picture) 857
- MEDICAL CENTER—Continued
  - University of Kansas, television at, (Committee article) [Schafer] *78
  - Walter Reed Army, new commandant for, (picture) 257
- MEDICAL CLINIC: See Clinics
- MEDICAL CODE: See Ethics, Medical
- MEDICAL COLLEGE: See also Schools, Medical; University
  - of Virginia, services available for medically indigent, (Council report) 268
- MEDICAL CONFERENCE: See Conference
- MEDICAL CONGRESS: See Congress
- MEDICAL CORPS: See Armed Forces; Army, U. S.; Navy, U. S.
- MEDICAL CURRICULUM: See Education, Medical
- MEDICAL DAYS
  - Journées medicales, 1058; 1255
- MEDICAL DEFENDANT: See Medical Jurisprudence
- MEDICAL DIATHERMY: See Diathermy
- MEDICAL DISCOVERIES: See Discoveries
- MEDICAL ECONOMICS: See Economics, Medical
- *MEDICAL EDUCATION: See Education, Medical*
- MEDICAL EQUIPMENT: See Medical Supplies
- MEDICAL ETHICS: See Ethics, Medical
- MEDICAL EXAMINATION: See Physical Examination
- MEDICAL EXAMINERS
  - National Board of: See National Board of Medical Examiners
- MEDICAL EXPENDITURES: See Economics, Medical
- MEDICAL EXPENSE INSURANCE: See Hospitals, expense insurance; Medical Service Plans
- MEDICAL FEES: See Fees
- MEDICAL FELLOWSHIPS: See Fellowships
- MEDICAL FILMS: See Moving Pictures
- MEDICAL FOUNDATIONS: See Foundations
- MEDICAL GRADUATES: See Graduates
- MEDICAL HISTORY: See Medicine, history
- MEDICAL INSTITUTE: See Institute
- MEDICAL JOURNALS: See Journals
- MEDICAL JURISPRUDENCE: See also Laws and Legislation; Malpractice; Medicolegal Abstracts at end of letter M
  - Belgian Society of International Medical Law, 350
  - blood grouping tests for exclusion of paternity, [Unger] *1006
  - can twins have different fathers? court decision, 199
  - Maine Medico-Legal Society organized, 1639
  - medical defendant, London, 1453
- MEDICAL LECTURES: See Lectures
- MEDICAL LEGISLATION: See Laws and Legislation
- MEDICAL LIBRARY: See Library
- MEDICAL LICENSING BOARD: See State Board
- MEDICAL LICENSURE: See Licensure
- MEDICAL MAGAZINES: See Journals
- MEDICAL MEETINGS: See American Medical Association; Societies, Medical; list of Societies at end of letter S
- MEDICAL MOTION PICTURES: See Moving Pictures
- MEDICAL MUSEUM: See Health museum
- MEDICAL OFFICERS: See Armed Forces; Army, U. S.; Health, USPHS; Medical Preparedness; Navy, U. S.
  - Returning: See Veterans
- MEDICAL PARTNERSHIPS: See Partnerships
- MEDICAL PERIODICALS: See Journals
- MEDICAL PICTURES: See Moving Pictures, Medical; Television
- MEDICAL PLANS: See Medical Service Plans
- MEDICAL POLICY COUNCIL: See Armed Forces
- MEDICAL PRACTICE: See Medicine, practice; Physicians
- MEDICAL PRACTICE ACTS: See Medicolegal Abstracts at end of letter M
- MEDICAL PREPAREDNESS: See also Civilian Defense
  - deferment of priority 3 interns, 50—E
  - Doctor-Draft Law, [Bauer] 723; (A.M.A. resolution on) 848
  - Doctor-Draft law extended, 1237—E, (President McCormick's page), 1239
  - Doctor-Draft Law, inequities of, 165—E; (statement of Dr. Edwin S. Hamilton before Congress), 166
  - Doctor-Draft Law, injustices inherent in, President Bauer's page, 458
- MEDICAL PRIZES: See Prizes
- MEDICAL PRODUCTS: See Medical Supplies
- MEDICAL PROFESSION: See Medicine, profession; Physicians; Specialists; Surgeons
- MEDICAL PROGRESS DAY, annual, A.M.A. resolutions on, 851
- MEDICAL PUBLIC RELATIONS: See Public Relations
- MEDICAL RECORD LIBRARIANS
  - in hospitals, statistics on, *159; *160; 165—E
  - schools for, approved by A.M.A., *163
  - technicians, essentials for training, (Council report), 830; 831
- MEDICAL RECORDS
  - whole life, 711—E
- MEDICAL RESEARCH: See Research
- MEDICAL RESEARCH COUNCIL
  - antibiotics in treatment of whooping cough, London, 1257
  - report on isoniazid treatment of pulmonary tuberculosis, 548; 876—ab
  - sterilization, use and care of syringes, [Sauer] *1315
- MEDICAL RESPONSIBILITY: See Malpractice
- MEDICAL SCHOOLS: See Schools, Medical
- MEDICAL SCIENCE: See Medicine; Research
  - Basic: See Basic Sciences
- MEDICAL SERVICE: See also Health center; Hospitals; Insurance, sickness; Medical Center; Medicolegal Abstracts at end of letter M
  - A.M.A. Council on Medical Service: See American Medical Association
  - A.M.A. Council on National Emergency Medical Service: See American Medical Association
  - A.M.A. resolution on responsibility of U. S. Government in medical care of the citizen, 731; 733
  - analysis of 1,000 consecutive residence visits to acutely ill, [Couter & others] *1704
  - *Center: See Medical Center*
  - Citizens Advisory Commission on Medical Care of Dependent Military Personnel, 349
  - cost of, [Allen] *660
  - cost of, old and new base periods for price indexes, 1341—E; (Bureau article) [Dickinson] *1365
  - Emergency Calls: See Emergency
  - Emergency Maternity and Infant Care Program: See Emergency
  - federal, 728
  - federal, A.M.A. resolution on reconsidering report of special committee on, 838
  - Fees for: See Fees
  - for Armed Forces: See Army, U. S.; Armed Forces; Medical Preparedness
  - for dependents of servicemen, report to Los Angeles County Medical Society by A.M.A. Council, 758
  - for Indigent: See Medically Indigent
  - for Veterans: See Hospitals, veterans; Veterans
  - 14 points that need special attention, President Bauer's Page discusses, 458
  - Home Care: See Home care
  - Industrial: See Industrial Health
  - 1952 medical care dollar, 1635—E
  - opinion survey and inventory of in Mecklenburg County, N. C., [Welton] *1145
  - Plans: See Medical Service Plans following
  - Rural: See Rural Communities
  - Salaried: See Wages
  - Supply of Physicians for: See Physicians, supply
- MEDICAL SERVICE PLANS: See also Hospitals, expense insurance; Medicolegal Abstracts at end of letter M
  - Blue Shield, introduce 26 millionth subscriber at A.M.A. New York meeting, 853
  - federal subsidization of private plans, federal bills on, A.M.A. attitude on, 1050; 1242
  - in New York hotel industry, [Guidotti] *788
- MEDICAL SOCIAL WORK
  - National Foundation for Infantile Paralysis grant for, 1155
- MEDICAL SOCIETY: See Societies, Medical; list of Societies at end of letter S; Medicolegal Abstracts at end of letter M
- MEDICAL SPECIALISTS: See Specialists
- MEDICAL STAFF Meetings: See Hospitals, staff meetings
- MEDICAL STAMPS: See Postage Stamps
- MEDICAL STATISTICS: See Vital Statistics
- MEDICAL STUDENTS: See Students, Medical
- MEDICAL SUPPLIES: See also Apparatus; Dressings; Drugs; Instruments; Syringe
  - A.M.A. resolution on advertising of medical products, 844; (Reference Committee report), 1053
- MEDICAL TEAMS
  - civil defense, Wis., 859
- MEDICAL TECHNOLOGISTS: See Technologists
- MEDICAL TERMINOLOGY: See Terminology
- MEDICAL VETERANS: See Veterans
- MEDICAL WRITERS: See Literature
- MEDICAL WOMEN: See physicians, women
- MEDICALLY HANDICAPPED: See Crippled; Handicapped
- MEDICALLY INDIGENT
  - care for in Richmond, Va., (Council report) 268
  - spectacles for: New Eyes for the Needy, Inc., 174
- MEDICATION: See Drugs; Self-Medication
- MEDICINE: See also Education, Medical; Medical Service; Physicians; Surgeons; Surgery
  - Academy of: See Academy
  - Aeromedicine: See Aviation medicine
  - American, report to nation, A.M.A. president's address, [McCormick] *485
  - A.M.A. Committee for Study of *Relations* Between Osteopathy and Medicine, 734; (Reference Committee reports), 739; 740
  - Aviation: See Aviation
  - Congress of: See Congress
  - Cults: See Chiropractors; Osteopaths
  - Faculty of: See Schools, Medical
  - Fellowship for Freedom in Medicine, physicians divided over practices, London, 1454

rudence
ndations
on establishing
A.M.A. Bureau of, 848
history, bicentenary of Lind's "Treatise on Scurvy," 1258; 1331—ab
history, convention on, Israel, 1256
history, exhibit by New York societies at time of A.M.A. meeting, 242
history, inaccuracies in Sachs' *HISTORY OF NEUROLOGICAL SURGERY*, [Wartenberg] 184—C
history, meeting on, Oklahoma, 463
history, new Hebrew journal: *Koroth*, 260
history on postage stamps, (Leisure Corner) *1364; [Gebhard] 1732—C
history, William Beaumont, pioneer physiologist, [Stenn] *915; (correction) 1156
Industrial: See Industrial Health
Law in relation to: See Medical Jurisprudence
Lectures on: See Lectures
Legal: See Medical Jurisprudence
medical and surgical society meeting, Romagna region, Italy, 1164
medical help for India: A.M.A. endorsed joint project of CARE and WHO, 1045—E
Military: See Korean War; Military Medicine
Moving Pictures Concerned with: See Moving Pictures
Organized: See American Medical Association; Societies, Medical
Practice: See also Licensure; Malpractice; Medical Service; Obstetrics; Physicians, practicing; Specialties
practice and society; mediation committee, [Allen] *658
practice, anesthesiology as aid to other fields of, [Lundy] *805
Practice, Emergency Calls: See Emergency
practice (general) dept. in hospitals, *158; (report of Joint Commission on Accreditation of Hospitals), [Crosby] 825
practice (general) in National Health Service, London, 472
Practice, Opportunities for: See Physicians, positions open
practice, report of A.M.A. Committee on general practice prior to specialization, 834
Preventive: See Preventive Medicine
Prizes in: See Prizes
Profession of: See also Physicians; Specialists; *Surgeons*
profession of, deficiencies within, [Allen] *658
profession of, interdependence of pharmaceutical industry, [Sevringhaus] *1522
vchosomatic Medicine
rch
arships
Medical
d Horder, 1064
social, teaching of, London, 261
Socialized: See Insurance, sickness
Socialized, National Health Service: See National Health Service, England
Societies: See Societies, Medical
Specialization: See Specialties
today—its aims and responsibilities, [Allen] *657
Tropical: See Tropical Medicine
Women in: See Nurses and Nursing; Physicians, women
MEDICINE AND THE WAR: See Medical Preparedness
MEDICINES: See Drugs; Proprietaries
MEDICOLEGAL: See Medical Jurisprudence; Medicolegal Abstracts at end of letter M
MEDULLA Spinalis: See Spinal Cord
MEETINGS: See American Medical Association; Societies, Medical; list of Societies at end *of letter S*
MELANCHOLIA: See Mental Depression
MELANIN
hyperpigmentation, treatment with monobenzyl ether of hydroquinone (benoquin), [Lerner & Fitzpatrick] *577
MELANOMA
malignant, [Allen] 87—ab
malignant, long survival in, [Galgano] *518
malignant, treated by antirabies vaccine (*Pack's* method), [de Auster] 98—ab
MELANOSIS
congenital, of eyelids, treated with benoquin, [Lerner & Fitzpatrick] *577
MELASMA
treated with benoquin, [Lerner & Fitzpatrick] *577
MELKERSSON'S SYNDROME
[Lathrop] *23
MEMORIAL
Lectureship: See Lectures
to Physicians: See Physicians, memorial; Prizes
MEN: See Male (cross reference)
in Service: See Armed Forces; Army, U. S.; Korean War; Navy, U. S.; Veterans
MENDEL AND OSBORNE MEDAL: See Prizes
MÉNIÈRE'S Disease: See Vertigo, aural
MENINGES
subdural effusions in infancy, [Guthkelch] 282—ab; [Stevens] 1470—ab
MENINGES—Continued
subdural hematoma, subdural fluid complicating bacterial meningitis, simulating, [McKay & others] *387
subdural hematoma (traumatic), [Lipscomb] *590
Tuberculosis: See Meningitis, tuberculous
MENINGITIS: See also Arachnoiditis
acute, diagnosis in infancy, [Haworth] 1572—ab
bacterial: advisable to give dihydrostreptomycin intrathecally, (reply) [Konigsberger; Welch] 200
bacterial, subdural fluid complicating, [McKay & others] *387
cause of mental deficiency, [Levinson & Goldenberg] *785
complications after, [Fox] 1273—ab
diagnosis (differential) *from* poliomyelitis, [Grulee] *1587
influenzal: recognized criteria for cure of in children? 985
pneumococcic, [Alexander] 1460—ab
Pseudomonas *aeruginosa*, in children, [Clement] 1573—ab
purulent, bone marrow culture in, [Choremis] 1481—ab
purulent, subdural effusions in infancy, [Guthkelch] 282—ab
treatment, bacitracin in cranial suppuration, [Teng] 1074—ab
treatment, erythromycin, [Herrell & others] *1605
treatment (optimal), guides to, [Alexander] *662
tuberculous, [Zamora] 94—ab
tuberculous, in adults, Italy, 867
tuberculous, isoniazid for, (Turkey), 265; García Díaz] 1277—ab; [Messmer] 1671—ab
tuberculous, later fate of children recovering from, [Callens] 97—ab
tuberculous, streptomycin combined with congo red for, [Péscetti] 1179—*ab*
tuberculous, *streptomycin for*, [Russell] 95—ab; (in adults) [Nicolaj] 1279—ab; [Paci] 1281—ab
[Fedtke] 976—ab
Neisseria meningitidis
acute, trypsin injection *for*, [*Innerfield* & others] *597
lymphocytic, [Schildknecht] 1078—ab
Syphilitic: See Dementia Paralytica
tuberculous, isoniazid orally and streptomycin intramuscularly *for*, [*Suárez*] 287—ab
tuberculous, later fate of children recovering from, [Callens] 97—ab
MENOPAUSE
arthralgia in, Primer on Rheumatic Diseases, *531
disorders, combination of 3 sex hormones for, [Juster] 1280—ab
disorders, estrogens plus androgens for, [de Watteville] 98—ab
disorders, vaginal trichomoniasis in, [Candiani] *287—ab*
hot *flashes at 27, 1586*
hot flashes long after, 1495
MENSTRUATION
Cessation of: See Menopause
disorders, vaginal trichomoniasis in, [Candiani] 287—ab
mental depression during, 1497
precocious, in 4 year old girl after taking estrogens, [Cook] 1471—ab
premenstrual tension, [Lamb] 1659—ab
scanty, and hot flashes at 27, 1586
eights and Measures
See also Epilepsy;
care of, Norway, 1361
congenital mental deficiency and sterilization of parents, 655
mental retardation in children, [Levinson & Goldenberg] *781
toxoplasmosis and, [Burkinshaw] *1277—ab*
when should a retarded child be institutionalized? [Jolly] 1557—ab
MENTAL DEPRESSION
during menstruation, 1497
eczema, and anorexia, syndrome from "improved" flour, London, 353; [Pollock] 1066—C
See also Alcoholism;
Dementia *Precox*;
Hospitals, psychiatric
incidence, local and national organizations interested in, 48—E
treatment, clinical evaluation of prefrontal lobotomy, [Kolb] *1085
treatment for emotionally disturbed children, 956
treatment, hazards of lobotomy (prefrontal and transorbital), [Freeman] *497
treatment, lysergic acid ethylamide, [Solms] 1487—ab
treatment, prolonged sleep in, [*Bastie*] 1486—ab
MENTAL HEALTH
A.M.A. Committee report on activities of state *medical* associations in, *1053*
Belgian National Assembly of Mental Hygiene (5th), 350
census, Denmark, 470
MENTAL HEALTH—Continued
Directory of Mental Health Resources, 1720
Emotional Health (film review), 272
Institute, 6th annual, Ohio, 946
local and national organizations interested in, 48—E
National Association for Mental Health, 48—E; (survey on increase in psychiatric service) 343; (research on mental illness) 1155
Outline for Evaluation of Community Program in Mental Hygiene, 48—E
program, Calif., 943
society organized, Alaska, 947
week, Illinois, 58
World Federation for, 48—E; 1543
MENTAL HOSPITALS: See Hospitals, psychiatric
MENTAL HYGIENE: See *Mental Health*
MENTAL RETARDATION: See Mental Defectives
MENTAL STRESS: See Stress
MENTALITY: See Intelligence; Mental Defectives
MENTHOL
value of nebulized spray containing, 1290
MEPERIDINE (Demerol; Pethidine)
to prevent coughing during intratracheal anesthesia, [Buschkens] 977—ab
MEPHENESIN (Myanesin; *Tolserol*)
N.N.R., (Hermelin) 332; (Tolulexin of Miller) 332; (Bowman; Tutag) 921; (Hexagon; Miller) 1339
treatment of drug addition, [McLaughlin] *1466—ab*
treatment plus refrigeration in neurosurgery, [Woringer] 1280—ab
MEPHOBARBITAL
treatment of delirium tremens, [Smith] *384
given oral-
iol
MERCUROPHYLLINE SODIUM
N.N.R., (Lincoln) 1339
MERCURY
chlormerodrin, N.N.R., (description) 331; (Lakeside) 331
compound, new hand disinfectant, [Massone] 1484—ab
diuretics given orally, therapeutic evaluation, [Greiner & Gold] *1130
diuretics, new for oral use: chlormerodrin, [Leff] 1563—ab
mercurialentis in thermometer maker, [Hunter] 1380—ab
MERSALYL (Salyrgan)
effect in pulmonary stasis of cardiac origin, [Marquardsen] 1489—ab
MESTILBOL
side-effects, (Council report) [Kennedy & *Nathanson] *1146*
METABOLISM: See also under names of specific substances
basal, test in thyroid diseases, [Barrett & others] *1414
effects of intravenous ethyl alcohol and self-induced alcoholism, [Battey & others] *6
METALS: See also Cadmium; Copper; Gold; Iron; Lead; Tantalum
perspiration stains on; *pH of skin*, 295
METAPLASIA
myeloid, with terminal leukemia, [*Long* & others] *1619
METASTASES: See Cancer
METATARSUS
anterior metatarsalgia *or painful* toe, 1084
excise plantar condyles for intractable plantar warts, [DuVries] *1202
METHANTHELINE BROMIDE (Banthine Bro*mide*)
anticholinergic *drugs and* gastric secretion, [Kirsner] 649—ab
effects on pain and motility in duodenal ulcer, [Hightower] *649—ab*
effects on vesical *function*, [Draper] 1667—ab
to control pai *2
treatment of 2—ab
treatment of 471;
(Norway) 549
with phenobarbital
of sodium nitrite through burned area, [Rozenfeld] *706
Neomercazole)
and hepatitis,
*27
toxicity: loss of taste, [Hallman & Hurst] *322
treatment of thyrotoxicosis [Doniach] 1483—ab
METHIUM: See Hexamethonium
METHODIST EPISCOPAL CHURCH
Hall of Fame in Philanthropy, physicians elected to, 1057
METHONIUM
Decamethonium: See Decamethonium
Hexamethonium: See Hexamethonium
new compound in arterial hypertension, [Smirk] 977—ab

METHORPHINAN HYDROBROMIDE: See Racemorphan Hydrobromide
METHOXAMINE HYDROCHLORIDE (Vasoxyl)
  treatment of paroxysmal supraventricular tachycardia, [Berger & Rackliffe] *1132
METHOXYCHLOR (Marlate; DMDT)
  A.M.A. Committee report on names for insecticides, *819
METHOXYPHENAMINE HYDROCHLORIDE (Orthoxine)
  N.N.R., (Upjohn) 333
8-METHOXYPSORALEN (Ammoidin; Imperatorine; Xanthotoxin)
  treatment of vitiligo, [Lerner] 1374—ab; [Sidi] 1385—ab
METHYL-BIS (BETA-CHLOROETHYL) AMINE Hydrochloride: See Nitrogen Mustard
METHYLENEBIS (Hydroxycoumarin); See Bishydroxycoumarin
METHYLROSANILINE
  poisoning, fluorescein solution treatment, (correction) [Hesford & Smith] 748
METHYL VIOLET: See Methylrosaniline
METHYLENE BLUE
  choline and, in eye wash, 1498
  diagnosis of toxoplasmosis, 1634—E
METHYLTHIONINE CHLORIDE: See Methylene Blue
METRAZOL: See Pentylenetetrazole
METRIC SYSTEM
  use by A.M.A. and others, 1045—E
MEXICAN
  Institute of Public Health and Tropical Diseases, 1359
  Instituto Superior transformed into university, 1259
  universities, second assembly, 1165
MICHIGAN
  State Medical Society Scroll: See Prizes
MICROBIOLOGY
  International Congress for, 1156
MICROCEPHALY
  cause of mental deficiency, [Levinson & Goldenberg] *785
  heredity, 1288
MICROCOCCUS: See Staphylococcus
MICROFILMS: See Thorax, chest x-rays
MICROGNATHIA: See Jaws
MICROORGANISMS: See Bacteria
MICROPHONE
  teaching auscultation by endless loop tape recording, [Geckeler] *1335
MICROSCOPY
  electron, course in, N. Y., 249
MICROTHERMY: See Diathermy
MIDDLE Lobe Syndrome: See Lungs
MIDWIFERY: See Obstetrics
MIGRAINE: See also Headache
  ophthalmoplegic, pyretotherapy, [Patrikios] 1656—ab
MILES LABORATORIES
  new research building, Ind., 536
MILIARIA
  [Shelley] *670
MILITARY: See also Armed Forces; Army, U. S.; Aviation, U. S. Air Force; Korean War
  medical affairs, things A.M.A. has done and is doing regarding, (President's page) 1239
  medicine, International Meeting on, 1058
  medicine, note on, [Gregg] *962
  Preparedness: See Medical Preparedness
MILK: See also Casein
  aspiration pneumonia, [Moran] 1369—ab
  extra, for welders, 776
  human, should mother nurse erythroblastotic babies? 1396
  human, stimulating supply: pituitary hormone, prolactin; no South American herb of value, 375
  safety of milk products in Europe, 1288
  social aspect of food rationing, Israel, 1256
MILKERS' NODULES
  incidence; etiology; type of lesion, 50—E; [Green] 757—C; [Lane] 1067—C; [Ronchese] 1732—C
MILLER (James Alexander) Fellowship: See Fellowships
MILLIN Technic: See Prostatectomy
MINERAL: See Copper; Gold; Iron; Lead; Metals
  Oil: See Petrolatum, liquid
MINERS
  acute toxicity of carnotite ore dust in uranium miners, [Wilson] 1459—ab
  Welfare and Retirement Fund, A.M.A. resolution on, 849
MINNESOTA Medicine: See Journals
  University of: See University
MINOT Lecture: See Lectures
MISCARRIAGE: See Abortion
MISSISSIPPI
  solution to placement problem, (Council article) *553
MISTAKES: See Errors
MITRAL VALVE
  stenosis, ballistocardiography in discussed by Italian Society of Cardiology, 866
  stenosis, commissurotomy for, [Cooley] 86—ab; [Glover] 90—ab
  stenosis (congenital), valvulotomy for, [Bower] 1570—ab
  stenosis, effect of mersalyl in pulmonary stasis in, [Marquardsen] 1489—ab
MITRAL VALVE—Continued
  stenosis, effect of tolazoline on cerebral blood flow in, [Dewar] 1482—ab
  stenosis, reformation after commissurotomy, [Donzelot] 1571—ab
  stenosis, report of 44 patients operated on for, [David] 285—ab
  stenosis, selecting patients for commissurotomy, [Bruce] 1173—ab; (with venous cardiac catheterization) [Chapman] 1176—ab
  stenosis, surgical treatment, [Denk] 100—ab
  stenosis, valvulotomy, problems in selecting patients for, [Biorck] 875—ab
MOBILIZATION: See Medical Preparedness
MOLE: See Nevus
  Hydatidiform: See Placenta tumors
MOLONEY SKIN TEST
  booster tetanus injection advisable in allergic child, 1084
MONGOLISM: See Idiocy
MONICHOL
  effect on cholesterol metabolism, [Sherber & Levites] *682
MONILIASIS
  Candida peritonitis, [Reynell] 1479—ab
  fatal infections (Candida albicans) complicating antibiotic therapy, [Brown & others] *206
  treatment, candicidin, [Kligman] 1565—ab
MONONUCLEOSIS, INFECTIOUS
  associated with symptoms of acute pericarditis, [Soloff & Zatuchni] *1530
  diagnosis, severe *p*-aminosalicylic acid hypersensitivity simulating, [Lichtenstein & Cannemeyer] *606
  in pregnancy: effect on fetus, [Kaye] 85—ab
  treatment, gamma globulin, [Freund] 77—C
MONOPHEN
  pseudoalbuminuria after, [Seedorf & others] *1332
MONSTERS
  genes and mermaids: sympus dipus, 1131—ab
MORAL Code: See Ethics, Medical
MORALS
  advising radical surgery: problem in medical morality, [del Regato] 77—C
MORBIDITY: See Disease
  Statistics: See Vital Statistics
MORBUS caeruleus: See Heart anomalies
MORPHINE
  *di*acetyl- (heroin), consumption, Australia, 70
  death due to, in persons under influence of alcohol or barbituric acid, [Møller] 288—ab; 352
  sulfate to control pain in acute pancreatitis, unnecessary routine orders, [Harbison] *397
MORRIS (Roger) Memorial Address: See Lectures
MORRISON (A. Cressy) Prize: See Prizes
MORRISSEY, E. J., A.M.A. message from San Francisco, 850
MORTALITY: See Accidents, fatal; Death; *Infants; Maternity mortality; Vital Statistics;* under names of specific diseases
  Rate: See Vital Statistics death rate
MORTICIANS: See Undertakers
MOSQUITOES
  yellow fever prevalence and, noted in 1811, [Garb] 757—C
MOTHERS: See Maternity; Parents; Pregnancy
  Milk: See Milk, human
MOTION PICTURES: See Moving Pictures
MOTOR COURTS: See Tourist camps, hostels
MOTOR VEHICLES: See Automobiles; Medicolegal Abstracts at end of letter M
MOUNT EVEREST: See Everest
MOUTH: See also Jaws; Lips; Teeth; Tongue
  focal infection and renal function, Italy, 1452
  Inflammation: See Stomatitis
  lesions of mucocutaneous junctions in pyridoxine deficiency, [Ramalingaswami] 361—ab
  reactions to aureomycin and procaine penicillin troches, [Kutscher] 1270—ab
MOVING PICTURES: See also Television
  A.M.A. Committee on Medical Motion Pictures: See American Medical Association
  A.M.A. film catalog supplement now available, 169
  films for A.M.A. New York Meeting, 243
  new films added to A.M.A. Film Library, 272; 477; 965; 1068
  supplement to list of films for television, 54
  use by hospitals, questions on by A.M.A. Committee on Medical Motion Pictures, *157
MOVING PICTURES, MEDICAL (REVIEWS)
  Blood Streams in the Basilar Artery, 1068
  Carcinoma of the Thyroid, 1262
  Cesarean Hysterectomy (Porro) PMF 5204, 477
  Clinical Shock PMF 5108, 186
  County and Community Recreation, 965
  Emotional Health, 272
  Fire and Your Hospital, 477
  Food as Children See It, 648
  Glaucoma: What the General Practitioner Should Know, 272
  Heredity and Pre-Natal Development, 965
  Hypertensive Crises, 186
  Infectious Hazards of Bacteriological Techniques: Part I. The Inoculating Needle, 965
  Operative Cholangiography, 186
  Personal Health for Girls, 648
  Personal Hygiene for Boys, 648
  Preface to a Life, 272
  Primary Hyperparathyroidism, 272
MOVING PICTURES, MEDICAL (REVIEWS)—Continued
  Reconstruction of Esophagus by Jejunal Transplant, 965
  Regional Analgesia, 1068
  Story of Wendy Hill, 272
  Subtotal Gastrectomy for Duodenal Ulcer Perforating into Pancreas, 1068
  Surgical Approaches to Hip Joint, 272
  Surgical Approaches to Knee Joint, 272
  Surgical Approaches to Scapulohumeral Joint, 477
  Surgical Repair of Direct Inguinal Hernia with Rectus Sheath Graft, 1262
  Tantalum Mesh Implant in Large Incisional Hernia, 272
MUCIN
  Aluminum Hydroxide-Magnesium trisilicate Mixture: See Almagucin
MUCOPROTEINS
  of nasal mucosa of allergic patients, [Rappaport] 88—ab
MUCOTIN: See Almagucin
MUCOUS MEMBRANES: *See also Endometrium;* under specific organs
  lesions of mucocutaneous junctions in pyridoxine deficiency, [Ramalingaswami] 361—ab
MULTIPLE
  Births: See Twins
  Sclerosis: See Sclerosis, Multiple
MULTITONE Muscle Stimulator, Model 3, 1433
MUMPS (epidemic parotitis)
  skin test during epidemic, [Cabasso & Hoagland] *1527
  viral diseases in pregnancy: effect on fetus, [Kaye] 85—ab
MURDER: See Suicide
MUSCLES: See also Cartilage; Fascia; Tendons
  abdominal, expiratory function, [Campbell] 1670—ab
  Atrophy: See Atrophy
  Cardiac: See Myocardium
  Dystrophy: See Dystrophy, muscular
  electromyography in neurological diagnosis, [Marinacci] 1268—ab
  Exercise: See Exercise, therapeutic
  Exertion: See Effort
  graft, Surgical Repair of Direct Inguinal Hernia with Rectus Sheath Graft (film review), 1262
  Inflammation (Multiple): See Dermatomyositis
  Injection into: See Injections, intramuscular
  rectus abdominis, hematoma of, in pregnancy, [Chalmers] 1571—ab
  relaxant, use of succinylcholine iodide in electroshock therapy, [Holmberg] 1384—ab
  relaxation of hand and fingers on steering wheel in driver going to sleep, 374
  rigidity, 20% carbon dioxide inhalation for, [Fay] *1623
  skeletal, drugs affecting, 495—ab
  Spasm: See Poliomyelitis; Spasm; Tetany
  Sphincter: See Sphincter Muscles
  Stimulator: See Stimulator
  Strength, Decrease of: See Myasthenia Gravis
MUSCULAR DYSTROPHY: See Dystrophy
MUSEUM: See Health museum
MUSSELS
  quarantine on, Calif., 246
MUSTARD
  Nitrogen: See Nitrogen Mustard
MYALGIA
  Epidemic: See Pleurodynia, Epidemic
MYANESIN: See Mephenesin
MYASTHENIA GRAVIS: See also Dystrophy, muscular
  Myasthenia Gravis Foundation, Inc., Medical Board of, 617
  sensitivity to tubocurarine and decamethonium in, [Palikan] 1173—ab
  syndrome, studies on, [Stuppler] 768—ab
  treatment, edrophonium, [Westerberg] 1173—ab
  treatment, ocatamethyl pyrophosphoramide, [Schulman & others] *1707
MYCOBACTERIUM Tuberculosis: See Tubercle Bacillus
MYCOLOGY
  medical, course in, N. C., 859
MYCOSIS: See also Actinomycosis; Blastomycosis; Moniliasis
  Cutaneous: See Dermatophytosis; Tinea capitis
  fatal, complicating antibiotic therapy, [Brown & others] *206
  in Mexico, 1360
  of feet, ways to prevent, 292
  of nails on one hand, 1498
  treatment, candicidin, [Kligman] 1565—ab
MYELITIS: See Encephalomyelitis; Poliomyelitis; Spinal Cord inflammation
MYELOGRAPHY: See Spinal Canal, roentgen study
MYELOID METAPLASIA
  with terminal leukemia, [Long & others] *1619
MYELOMA
  multiple; treatment, [McCarroll] *299
MYOCARDITIS
  acute rheumatic, cortisone treatment, [Golden] 763—ab
  isolated, in infants, Fiedler disease, [Conlin] 1272—ab
MYOCARDIUM
  degeneration, effect of mersalyl in pulmonary stasis, [Marquardsen] 1489—ab
  Infarction: See also Thrombosis, coronary

[illegible]
  [illegible]gement of shock in,
  [illegible]
  infarction (acute), seasonal variation, [Heyer] 1656—ab
  infarction and anticoagulants, Finland, 180
  infarction: electrocardiogram returns to normal, 1396
  infarction, hemopericardium with tamponade during anticoagulant therapy, [Rose & others] *1221
  infarction, hypotension in, 1583
  infarction, in pregnancy, normal spontaneous delivery 7 months later, [Brock & others] *1030
  infarction, mortality, morbidity and treatment, [Wooten] 559—ab
  infarction, procaine amide (pronestyl) used for, fatal reaction, 1738
  infarction, shoulder-hand syndrome after, cortisone for, [Russek] 1460—ab
  Inflammation: See Myocarditis
  magnesium silicate spread over surface of; cardiopericardiopexy in coronary disease, [Thompson & Plachta] *678
MYOGRAM, Electro—: See Muscles
MYOPIA
  treatment, ocular implants, Paris, 868
MYOSITIS
  Epidemic: See Pleurodynia, Epidemic
  Multiple: See Dermatomyositis
  rheumatoid (generalized fibrositis), Primer on Rheumatic Diseases, *527
MYOTONIA
  Dystrophica: See Dystrophy muscular
MYTILOTOXISM: See Mussels
MYXEDEMA
  development of, 294
  diagnosis, scintillation counter in, [Barrett & others] *1414
  post-thyroidectomy, after preoperative use of *antithyroid drugs*, [Bartels] 89—ab
MYXOMA
  cardiac, with cerebral embolism, [Russell] 286—ab

Medicolegal Abstracts

APPENDICITIS: sterilization procedure performed in connection with operation; general consent as justification, 271
ASSAULT AND BATTERY: operations performed under general consent, 271
ASSOCIATIONS
  medical; membership in relation to hospital privileges, 1263
  medical; prepaid care plans in relation to Sherman Anti-Trust Act, 1555
BLOOD
  transfusion; minor; court's right to order, 83
  transfusion; religious objections in relation to court's right to order, 83
CHRISTIAN SCIENCE: See also Medical Practice Acts; faith healers
  minor; court's right to order blood transfusion, 83
DRUGS
  cafergone; injury following use as headache remedy, 271
  caffeine and ergotamine tartrate in headache remedy; injury following use, 271
  ergotamine tartrate and caffeine in headache remedy; injury following use, 271
DRUNKENNESS: see also Hospitals in General; drunken patient
  chemical tests; admissibility, 1368, 1654
DRUNKOMETER: See Drunkenness; chemical tests
EVIDENCE
  drunkenness; chemical tests, 1368
  drunkenness; chemical tests; admissibility, 1654
  scientific tests; drunkenness, 1368
  scientific tests; drunkenness; admissibility, 1654
  scientific tests; truth serum, 1653
  truth serum; admissibility of testimony obtained by, 1653
EYES: See Workmen's Compensation Acts.
HEADACHE
  injury following use of remedy; liability of manufacturer, 271
HOSPITALS, IN GENERAL
  drunken patient; injuries to fellow patient by, 1654
  exclusion of practitioners; immoral conduct, 1263
  exclusion of practitioners; *membership in* medical society, 1263
LUNG MAPPING
  failure to hit trachea with hypodermic needle, 84
MALPRACTICE
  assault and battery; *sterilization procedure* in connection with appendectomy, 271
  evidence; witnesses; expert; necessity for, 84
  hypodermic injection; failure to hit trachea, 84
  lung mapping; failure to hit trachea, 84
  operations; appendectomy plus sterilization procedure, 271
  operations; consent; sterilization procedure under general authorizaiton, 271
  operations; unauthorized; emergency as justification, 271

Medicolegal Abstracts—Continued
MALPRACTICE—Continued
  sterilization; justifiable under general consent, when, 271
  trachea; lung mapping; failure to hit, 84
MEDICAL PRACTICE ACTS
  exemptions; faith healers, 82
  faith healers; exemption, 82
  licenses; revocation; contempt of Congress as crime, 963
  licenses; revocation; crime; contempt of Congress, 963
  licenses; revocation; moral turpitude; contempt of Congress, 963
MEDICAL SERVICE PLANS
  Sherman Anti-Trust Act in relation to, 1555
MOTOR VEHICLES
  drunken drivers; chemical tests, 1368
  drunkenness; chemical tests; admissibility, 1654
PYOSALPINX: See Malpractice: operations
SCIENTIFIC TESTS: See Evidence
SCOPOLAMINE: See Truth Serum
SHERMAN ANTI-TRUST ACT
  medicine; prepayment plans in relation to, 1555
SOCIAL SECURITY ACT
  physician as employe, 1368
SODIUM AMYTAL
  truth serum, 1653
SODIUM PENTOTHAL: See Truth Serum
TAXES
  social security; physician as employee, when, 1368
TRACHEA
  failure to hit with hypodermic needle, 84
TRUTH SERUM
  admissibility of testimony obtained by, 1653
WORDS AND PHRASES
  "employee," 1368
  "faith healers," 82
  "neglected child," 83
WORKMEN'S COMPENSATION *ACTS*
  eyes; vision as corrected by eyeglasses impaired by accident, 356

N

N.N.R.: See under names of specific products
NABISCO *Brand Low* Sodium *Toast*, 45
NAILS *(anatomic)*
  fungus infection of, on one hand, 1498
NAILS (wire)
  in bones, structural changes around, [Collins] 652—ab
  tetanus antitoxin be given after stepping on rusty nail 5 days before? 200
[illegible] ee Nalorphine
[illegible] (N-Allylnor-[illegible]
  N.N.R. (description) 45; (Merck) 45
NARCOSIS: See also Anesthesia
  intensive, in treatment of epilepsy, [Putnam & Rothenberg] *1400
  prolonged sleep in psychiatric treatment, [Bastié] 1486—ab
NARCOTICS: See also Cannabis; Harrison *Narcotic* Act; Morphine; Opium
  addiction, 697—ab
  addiction, treated with corticotropin, 294
  addiction, treated with mephenesin, [McLaughlin] 1466—ab
  cancer and, 1413—ab
  poisoning, future of intended suicides, Denmark, 1649
  supplies: responsibilities of physicians under Harrison Narcotic Act, 1634—E
  traffic in dangerous drugs, London, 72
NASAL: See Nose
  Sinusitis: See Sinusitis, Nasal
NASOGASTRIC TUBE
  unnecessary routine orders, [Harbison] *397
NASOPHARYNX
  epipharynx, malignant tumors, [Berg] 770—ab
  value of nebulized spray (camphor, menthol, and liquid petrolatum), 1290
NATIONAL: See also American; International; list of Societies at end of *letter* S
  Academy of Sciences (Coral Atoll Research Program sponsored by) 1162; (foreign scientific visitors) 1162
  Association for Mental Health, local and national organizations interested in, 48—E
  Blood Program: See Blood Transfusion
  Board of Medical Examiners, (combined results of examination of state boards and, for 1952) *421; *422; (purpose; historical data) *452; 456—E; (examinations: 1916-1952) *452; *453; *454; 456—E; (diplomates from individual schools) *454; (licenses granted on certificates from) *455
  Committee for Resettlement of Foreign Physicians, statement on foreign trained physicians from unapproved schools, [Burgess & Graef] 1260—C
  Conference of Rural Health, *digest of* proceedings, 1538
  Conference on Trichinosis, program for control of trichnosis, 241—E
  Congress of Neurology and Psychiatry (first), Colombia, 752
  Congress of Pediatrics (6th), Chile, 351
  Congress of Tuberculosis and Silicosis (5th), Mexico, 1165
  Convention of Surgeons (2nd), Colombia, 752

NATIONAL—Continued
  Defense: See Armed Forces; Civilian Defense; Medical Preparedness
  Emergency Medical Service, A.M.A. Council on: See American Medical Association
  Formulary: See Drugs
  Foundation for Infantile Paralysis: See Foundations
  Fund for Medical Education: See Foundations
  Fund for Sickness-Disability Insurance, Belgian, 1255
  Gamma Globulin Evaluation Center, 1648
  Health Council, Dr. A. Dent elected president, La., 1540
  Health Service, England, (general practice in), 472; (survey of prescribing by D. M. Dunlop), 754; (Irish physicians' disapproval of "White Paper"), 1063; (replacement of dentures by), 1063; (economy in manpower in hospitals), 1064; (Lord Horder criticizes *organization*), 1064; (prescribing under), 1453; (patients' charter seeks later hospital waking), 1454; (physicians divided over practices), 1454; (prescribers' notes), 1549; (Clinical Research Board in Relation to) 1730; (prescribability of proprietaries) 1730
  Hearing Week, 62
  Institute of Arthritis and Metabolic Diseases, Dr. Wilder, retires as director, 1162
  Institutes of Health: See Health
  Institute of Neurological Diseases and Blindness Fellowship: See Fellowships
  Intern Matching Program, Incorporated, (A.M.A. Reference Committee report), 846
  Medical Fellowships, Inc., award to 46 Negro physicians and scholars, 1440
  Research Council, (statement on distribution and use of gamma globulin), *648; (Rockefeller Foundation fellowship program, subsequent careers of applicants), [Bowen] *693; (report on Shropshire's fish lens protein injection for cataract), *707; 710—E; (Coral Atoll Research Program), 1162; (foreign scientific visitors), 1162
  Safety Council, (announces Carol Lane awards for traffic safety), 464; (traffic safety honor roll), 747; (names award winners), 949
  Science Foundation: See Foundations
  Spastic Society, London, 1549
NATIONS, United: See United Nations
NAVY, UNITED STATES: See also *Armed* Forces
  Admiral Groesbeck retires and goes to Indiana, 1062
  automobile accidents involving personnel, 1648
  civilian consultants meet with surgeon general, 546
  conference on submarine medicine by, 623
  Medical Acceleration Laboratory, research [illegible]
  [illegible] ruction in, 257
  [illegible] courses for), 257; (course for reserve officers in field medicine), 1161
  sea duty for WAVES, 1648
NEARSIGHTEDNESS: See Myopia
NEBULIZED Spray: See Spray
NECK: See also Lymphatic System; Spine, cervical; Throat
  hydrocele of evanescent mass in supraclavicular *fossa*, (reply) [Seed] 776
  nontraumatic subluxation of atlantoaxial *articulation*, [Stein & others] *131
  severe perforating wound from lead *pipe, [Black* & McClintock] *519
  tumors, free autogenous vein graft to carotid arteries for, [Conley] 360—ab
  whiplash injuries of, [Gay & Abbott] *1698
[illegible]
  [illegible] 985
NECROLOGY: See Deaths at end of letter D
NECROSIS: See also Femur; Liver
  hydrocortisone affects *resistance of* tissues to, [Selye] *1207
NEEDLES
  Biopsy: See Spleen
  broken, in tonsillar fossa, 984
  broken, surgeon's helper, (powerful patented magnet) to locate [Duffy] 1067—C
  sterilization in *DTP immunization*, [Sauer] *1315
NEEDY: See Medically Indigent
NEGROES
  blastomycosis treated with stilbamidine, [Pariser & others] *129
  cancer frequency in, [Rigdon] 191—ab
  lymphostatic verrucosis of lower limb amputation stump, [Loewenthal] 475—C
  National *Medical* Association, (program for annual meeting), 1351
  skin pigmentation in intermarriage, 1393
NEISSERIA
  gonorrhoea Infection: See *Gonorrhea*
  meningitidis fulminant infection with purpura; recovery, [Björklund] 1671—ab
NEMBUTAL: See Pentobarbital Sodium
NEOCID: See Chlorophenothane
NEODROL: See Stan*olone*
NEOHYDRIN: See Chlormerodrin
NEOMERCAZOLE: See Methimazole
NEOMYCIN
  sulfate, name accepted by Council, 709

NEOMYCIN—Continued
  treatment, local, of skin infections, [Gade] 981—ab
  treatment of skin diseases, Denmark, 352
  treatment of staphylococcic endocarditis, [Reed & Wellman] *702
NEO-PENIL: See Penethamate Hydriodide
NEOPLASMS: See Cancer; Sarcoma; Tumors; under region or organ affected
NEO-SCABICIDOL: See Benzene Hexchloride, gamma
NEOSTIGMINE (Prostigmine)
  drugs affecting skeletal muscle, 495—ab
NEPAL
  to participate in WHO program, 861
NEPHRITIS: See also Pyelonephritis
  acute, epidemic, [Reed] 1479—ab
  glomerular (acute), magnesium sulfate in children, [Harris] 1174—ab
  glomerular, packed red blood cells as source of protein for parenteral use, [Calloway & Mowrey] *777
  Hypertensive Chronic Vascular: See Nephrosclerosis, arteriolar
  treatment in young boy: prolonged bed rest dependent on urinalysis, 107
  Tuberculous: See Kidneys, tuberculosis
NEPHROLITHIASIS: See Kidneys, calculi
NEPHROSCLEROSIS
  arteriolar, idiopathic adrenal apoplexy, [Bauer] 961—C
  arteriolar, spontaneous idiopathic bilateral adrenal apoplexy with, [Greene] *133
NEPHROSIS: See Kidneys, disease
NERVES: See also Nervous System; Neur—
  acoustic, streptomycin and dihydrostreptomycin effect on, [Velasco] 1574—ab; [Heck] 1662—ab
  Anesthesia: See Anesthesia
  Block: See also Ganglion; Nervous System, Sympathetic
  block to control pain in pancreatitis, [Berk] *2
  chorda tympani, role in Ménière's disease; section cures, [Rosen] 1564—ab
  facial, affections, [Lathrop] *19
  facial, tumors of, [Lathrop] *24
  Deafness: See Otosclerosis
  femoral, lesion in hemophilia, [Lyons] 1382—ab
  Ganglion: See Ganglion
  [illegible] intracranial section in neu- [illegible] ern] *703
  [illegible] ors in, 1713—ab
  [illegible] with subacute bac- [illegible] Fisher] 628—C
  Paralysis: See Paralysis
  Reflex: See Reflex
  Roots: See Guillian-Barré Syndrome; Neurons
  sacral (first) injury in obstetric fracture-dislocation of pelvis, [Urist] *127
  Sciatic: See Sciatica
  splanchnicectomy for essential hypertension, [Smithwick & Thompson] *1501
  splanchnicectomy (left) in chronic relapsing pancreatitis, [Mallet-Guy] 371—ab
  Surgery: See under subheads of Nerves; Neurosurgery
  Sympathetic: See Nervous System, Sympathetic
  Syphilis: See Neurosyphilis
  vagotomy combined with simple suture for perforated ulcers, [Jelinek] 1387—ab
  vagotomy, recurrence of duodenal ulcer after, [Stempien & Weinberg] *1593
  vagus, intracranial section in glossopharyngeal neuralgia, [Richburg & Kern] *703
NERVOUS INDIGESTION: See Indigestion
NERVOUS SYSTEM: See also Brain; Ganglion; Nerves; Nervous System, Sympathetic; Spinal Cord
  Disease: See also Encephalomyelitis
  disease, differentiating from poliomyelitis, [Grulee] *1587
  disease, in patients with chronic disease at nursing home, [Goodman] *1336
  disease (organic), liver function tests in, [Faust] 1178—ab
  nervous child, 1431—ab
  peripheral, involved in icterogenous hepatitis, [Sterne] 1574—ab
  Surgery: See subheads under Nerves; Neurosurgery; Sympathectomy
  Syphilis: See Neurosyphilis
  tuberculos[illegible] [Zamora] 94—ab
NERVOUS [illegible]
  autonomic [illegible] in neurosurgery, [Woringer] 1280—ab
  block, and heparin in frostbite, [Kulhia] 551—C
  block for acute focal cerebral infarcts, [Gilbert & de Takats] 871—C
  block (lumbar), danger during anticoagulant therapy, [Hohf & others] *399; [Ruben] 1067—C
  blocks plus anticoagulants for vascular lesions, [Pratt] *903
  complications from "efocaine," [Shapiro & Norman] *608
  eclampsia and sympathetic nerves, [Theobald] 561—ab
  treatment of irradiation intoxication, [Zuppinger] 100—ab
NEURALGIA: See also Causalgia
  geniculate, [Lathrop] *20
  glossopharyngeal, with syncope and convulsions; intracranial section for, [Richburg & Kern] *703
NEURITIS
  complications from "efocaine," [Shapiro & Norman] *608
  Optic: See Nerves, optic
  optic neuritis after enormous doses of chloramphenicol, [Katlan] 1732—C
  Sciatic: See Sciatica
  serum, [Watkins] 1371—ab
  serum, after antitetanic serum, [Garvey] 363—ab
  serum, cerebral complications, [Park] 1173—ab
  [illegible] antigens, [Diamond] [illegible]—ab
  role of emotions in dermatoses, [Frumess] *1417
  treatment, trypsin injection, [Innerfield & others] *597
NEUROFIBROMA
  [illegible] ultrasound therapy, [illegible]
  [illegible] disease; prognosis; [illegible]
  [illegible] Nerves; Nervous System; Neur—
  Canadian Neurological Society, annual meeting June 20-21, 748
  International Congress (5th), 1724
  National Congress (first), Colombia, 752
  residencies, 258
  Scandinavian Congress, Norway, 73
  Surgery in: See Neurosurgery
NEURONITIS
  Infectious: See Guillain-Barré Syndrome
NEURONS
  [illegible] otor neuron disease, [illegible]
  [illegible] t, 1449
  [illegible] Psychoneurosis
  [illegible] ychoneurosis
  treatment, carbon dioxide inhalation, [illegible]
  [illegible] so Brain surgery; [illegible]
  autonomic drugs and refrigeration used in, [Woringer] 1280—ab
  controlled hypotension in, [James] 768—ab
  [illegible] Sachs' History of Neuro- [illegible] Vartenberg] 184—C
  [illegible] hile, 351
  [illegible] also Dementia para- [illegible] lis
  clinical, how soon does it appear after primary syphilitic lesion? 1395
  treatment, 1183
NEUTROPENIA: See also Agranulocytosis
  preleukemic acute human leukemia, [Block & others] *1018
NEVUS
  treatment, benoquin, [Lerner & Fitzpatrick] *577
  treatment of dark brown mole, (reply) [Hall] 776
  treatment, plastic surgery, [Brown] 1073—ab
  treatment, tattooing of nevus flammeus for permanent camouflage, [Conway] *666
NEWBORN: See Infants, Newborn
NEWELL Lecture: See Lectures
NEW ENGLAND
  diabetes in, 4 year progress study, [Wilkerson & Krall] *1322
NEW GROWTH: See Tumors
NEW JERSEY Orthopaedic Society Prize: See Prizes
NEWSPAPERS: See also Journals
  A.M.A. resolution on statements for publication, 841
  Blakeslee award (first) for scientific reporting, 342; (contest open) 1542
  commercial exploitation of mistreated children, 1044—E
  health hazard of photoengraving finisher in, 1290
NEW YORK
  Academy of Medicine, exhibit for medical historians and bibliophiles, 242
  Academy of Sciences Contest: See Prizes
  City Hospitals: See Hospitals
  City plan for care of poliomyelitis patients in respirators, [Wallace & Baumgartner] *1506
  County Medical Society, reply to Life's editorial, 1142—E
  Historical Society exhibit for medical historians and bibliophiles, 242
  hotel industry, direct medical service plan, [Guidotti] *788
  Medical College, teaching affiliation, 947
  Meeting: See American Medical Association
  Pharmaceutical Ass'n. Contest: See Prizes
NIADRIN: See Isoniazid
NICKEL
  [illegible] 8 patients (2 [illegible] 1178—ab
  [illegible] See Lympho- [illegible]
NICOZIDE: See Isoniazid
NIGHTINGALE, FLORENCE
  centennial, WHO to commemorate, 1056
NIKETHAMIDE
  correct dosage for premature infant? 1585
NISENTIL
  use in 1,000 obstetrical cases, [Kane] 1657—ab
NITRITES
  control pain in acute pancreatitis, [Berk] *1
  Sodium Nitrite: See Sodium
NITROGEN
  balance in elderly, effects of hormones, [Kountz] 1665—ab
  balance in hepatic cirrhosis during treatment with packed red blood cells, [Calloway & Mowrey] *777
  dietary treatment of hypertension: effect of protein on appetite, [Dole] 969—ab
  gaseous, elimination as measure of lung efficiency, [Boothby & others] *1000
  metabolism during aureomycin treatment, [Faloon] 1469—ab
  trichloride, hazards of "improved" flour, London, 353; [Pollock] 1066—C; [Sheldon] 1179—ab
NITROGEN MUSTARD
  effect on liver, (reply) [Zimmerman] 108
  treatment of cancer by intraarterial injection, [Grady] 762—ab
  treatment of Hodgkin's disease complicated by acute hepatitis, [Harris] *400
  treatment of rheumatoid arthritis, [Cohen & others] *402
  treatment plus aureomycin in human cancer, [Bateman] 1170—ab
  treatment vs. triethylene melamine, [Bond] 1655—ab
NITROSTIGMIUM
  Committee report on names for pesticides, *820
NODULES: See Milkers' Nodules; Thyroid
NOISE
  precordial noises heard at a distance from the chest, [Bean] *1293
  whistling, over temporal area synchronous with the heart beat, 774
NOISES in the Head: See Tinnitus
NOMENCLATURE: See Terminology
NOR-EPINEPHRINE: See Arterenol
NORTH CAROLINA
  scorpions in, 106
NORWEGIAN: See also Scandinavian
  Army: See Army
  radium hospital: annual report for 1951, 549
NOSE: See also Nasopharynx; Rhinitis
  Accessory Sinuses. See Sinusitis, Nasal
  Colds. See Hay Fever
  irritation in baker from flour incrustation on mucosa, 1677
  lesions of mucocutaneous junctions in pyridoxine deficiency, [Ramalingaswami] 361—ab
  mucoproteins of mucosa of allergic patients, [Rappaport] 88—ab
  polyps after allergic sinusitis, 1676
NOVOCAIN. See Procaine Hydrochloride
NUCLEAR PHYSICS: See Atomic Energy; Radiation, ionizing; Radioactive isotopes
NUCLEAR POWER: See Atomic Energy
NUCLEUS
  Pulposus: See Spine, intervertebral disk
NUPERCAINE: See Dibucaine
NURSES AND NURSING
  Books concerned with: See Book Reviews at the end of letter B
  desensitizing injections given by nurse, 1678
  graduate nurses in hospitals, statistics on, *154; *155; *156
  history, WHO to commemorate Nightingale centennial, 1056
  medical stamps honoring nurses, (Leisure Corner), *1364
  nursing home (Cuyahoga County), causes of disability in patients with chronic disease, [Goodman] *1336
  nursing homes on motor court plan, for care of aged and infirm, [Garton] 76—C
  nursing in Veterans Hospitals, A.M.A. resolution on regulation of, wage scale, 849
  practical nurses and auxiliary personnel in hospitals, statistics on, *155; *157; *158
  schools of, increased enrollment in, 349
  schools of nursing, A.M.A. resolutions on problem of accrediting, 728; 729; 731
  schools of nursing, statistics on, *154; *155; *156; 165—E
  student nurses in hospitals, statistics on, *154; *155; *156
NURSLINGS: See Infants
NUTRITION: See also Diet; Feeding; Food; Infants, feeding
  A.M.A. Council on Foods and Nutrition: See American Medical Association
  apoenzymes and, 710—E
  awards (annual): Borden Award; also Osborne and Mendel Medal, 341
  Deficiency: See also Scurvy; Starvation; Vitamins
  deficiency cause of mental deficiency, [Levinson & Goldenberg] *786
  deficiency, importance of food in preventive medicine, 1537—E

NUTRITION—Continued
  Foundation, in cooperation with A.M.A. established Joseph Goldberger Award, 42; 49—E
  malnutrition (severe) in children, vitamins for, Mexico, 958
  parenteral, [Strickler] 972—ab
  trends and needs in, (Council article) [Sebrell] *42
  Vitamins in: See Vitamins
NYDRAZID: See Isoniazid
NYLON
  prosthesis in lesions of shoulder, elbow, and finger, [MacAusland] *188—ab*

O

OMPA: See Octamethyl Pyrophosphoramide,
OBESITY
  causes, complications, treatment, Chile, 865
  health and, 1201—ab
  nation's major nutrition problem, (Council *article) [Sebrell]* *42
  overweight and longevity; mortality of all overweight persons, 1084
  treatment, 1596—ab
  treatment, "iodocasein," [Bertola] 285—ab
  treatment, weight reduction and atherosclerosis, 593—ab
OBITUARIES: See list of Deaths at end of letter D
OBSTETRICS: See also Abortion; Cesarean Section; Labor; Pregnancy; Puerperium
  Anesthesia in: See Anesthesia
  course of women athletes, [Niemineva] 1075—ab
  Emergency Maternity and Infant Care Program: See Emergency
  graduate course, Wis., 1036; 1440
  Italian Society for, meets, Sept. 21-24, 950
  new hand disinfectants for use in, [Massone] 1484—ab
  progress in, Chile, 547
  too much routine care in, [Notes] 1732—C
OCCUPATIONAL
  Careers: See Careers
  Dermatoses: See Industrial Dermatoses
  Disease: See Industrial Diseases
  Health: See Industrial Health
OCCUPATIONAL THERAPY
  in early rheumatoid arthritis, 1497
  Orthopedic Hospital establishes scholarships for therapy, Calif., 1054
  schools of approved by A.M.A., *162
  therapists in hospitals, statistics on, *159; *160; 165—E
  vacancies for therapists at VA, 1162
OCCUPATIONS: See Careers; Industrial Health
OCHRONOSIS
  secondary joint involvement, Primer on Rheumatic Diseases, *530
OCTALENE: See Aldrin
OCTALOX: See Dieldrin
OCTAMETHYL PYROPHOSPHORAMIDE
  treatment of myasthenia gravis, [Schulman & others] *1707
OCULAR Symptoms; Tests: See Eyes; Vision
ODDI'S Sphincter: See Sphincter Muscles
ODOR
  advertising chlorophyll as deodorant, [Thimann] 869—C
  chlorophyll as deodorant, [Brocklehurst] *876—ab; 1716—E*
  of urine in house from cats, how to obliterate, *200*
OFFICE
  of Defense Mobilization (distribution of gamma globulin by USPHS) 50—E; 68; (A.M.A. resolutions on gamma globulin) 849
  workers, dermatoses in, [Morris] *1218
OFFICERS: See Armed Forces; Army, U. S.; Aviation, U. S. Air Force; Health USPHS; Medical Preparedness; Navy, U. S.
  of A.M.A.: See American Medical Association
OHIO Oxygen Tent, Model 90A, 821
OIDIUM (Candida) albicans Infection: See Moniliasis
OIL: See also under specific names as Cinnamon; Croton Oil; Juniper Oil; Olive Oil
  Mineral: See Petrolatum, liquid
  worker, trauma as cocarcinogen in, [Kotin] 1170—ab
OINTMENT
  contact dermatitis from, 569—ab
  free alcohol, hydrocortisone (compound F), [Sulzberger *& others*] 1456—C
  Ophthalmic: See Eyes
OLD AGE: See also Life duration
  anticoagulants indicated after cerebral hemorrhage in 73-year-old man, 1584
  cardiovascular system in, [Grinschpun] 979—ab
  careers for maturing workers, Mich., 945
  cataract in octogenarian, 880
  cause of sudden death in elderly patient, 1677
  commission on geriatrics, *Pa., 463*
  degenerative joint disease, Primer on Rheumatic Diseases, *522
  diabetes mellitus complicated by cancer, 106
  frequent desire to urinate in man 72, 1586
  gastrointestinal hemorrhage of undetermined origin, [Bockus & others] *1228
  gastrointestinal roentgenograms, nonmalignant changes in, [Pirkey] 1568—ab

OLD AGE—Continued
  geriatrics study, grant from W. K. Kellogg Foundation, Mass., 858
  Gerontological Society, Inc., meeting in San Francisco, Aug. 25-27, 1350
  hypnotics, use in aging and senile patients, especially Dormison, [May & Ebaugh] *801
  Iowa Institute of Gerontology, 745
  nitrogen balance in elderly, [Kountz] 1665—ab
  occlusion of internal carotid artery detected by pharyngeal palpation, [Dunning] *321
  operative mortality, reducing in very aged (80 years and older) [Ziffren] *994
  Physicians attaining: See Physicians, veteran
  plan for care of aged; nursing homes on motor court plan, [Garton] 76—C
  protein in, specific dynamic action, [Tuttle] 1467—ab
  sinus bradycardia in woman 86, 1184
  urine incontinence in, Sweden, 959
OLECRANON: See Elbow
OLFACTORY Sense: See Smell
OLIGURIA: See Urine suppression
OLIVE OIL
  in the diet, value of: tourists' enteritis, (reply) [Martinez Diaz] 200
ONCHOCERCIASIS: See Filariasis
OPEN AIR Schools: See Schools
OPERATING Rooms; Table: See Surgery
OPERATION: See Surgery; under names of specific organ and disease
  Early Rising after Operation: See Convalescence
  Standard Nomenclature: See Terminology
OPHTHALMIC [illegible]: Solutions: See Eyes
OPHTHALMOLOGY: See also Eyes; Vision
  [illegible] 1455
  [illegible] of, 251; (invites *papers)* 1542
  Society for, Paris, 868
OPIUM: See also Morphine
  persistent urticaria, 1291
  [illegible] drugs, London, 72
  [illegible] See Nerves, optic
  [illegible]
  fees, old and new base periods for price indexes, 1341—E; (Bureau article) [Dickinson] *1365
ORAL Cavity: See Mouth
ORATIONS: See Lectures
ORBIT
  Transorbital Leukotomy: See Brain surgery
ORE: See Carnotite
ORGANIZATIONS: See Societies, Medical; list of Societies and Other Organizations at end of letter S
ORGANIZED LABOR: See Industrial Trade Unions
ORGANIZED MEDICINE: See American Medical Association; Societies, Medical
ORGANS: See Viscera; under names of specific organs as Heart; Stomach
ORNITHOSIS: See Psittacosis
ORPHANAGE: See under Children
ORTHOPEDICS: See also Bones; Foot; *Fractures*
  clinics, Wis., 1542
  Easter Seal school, S. C., 1349
  handicaps, care of children with, N. Y., 463
  Hospitals: See Hospitals, orthopedic
  Italian Society of, 71
  Latin American Society of and Brazilian Society of, meet in Rio de Janeiro, 748
  New Jersey Orthopaedic Society announces annual contest prize, 1247
  recording oscillometer in practice of, [Chandler & Dickinson] *901
ORTHOXINE Hydrochloride: See Methoxyphenamine Hydrochloride
OS CALCIS: See Calcaneus
OSBORNE and Mendel Medal: See Prizes
OSCILLOMETER
  recording [illegible] practice, [Chandler [illegible]
OS[illegible]
  [illegible]d, [Garton] 76—C
OSLER-RENDU-WEBER Disease: See Telangiectasia
OSSIFICATION: See Calcification
  Centers: See Bones
OSTEITIS
  acute hematogenous, in childhood, [White] 368—ab
  benign, acute, of spine, in children, [Bremner] 1478—ab
  condensans, [Gillespie] 281—ab
  pubic, increased after Millin's retropubic prostatectomy, [Götzen] 981—ab
OSTEOARTHRITIS: See Joints, degenerative joint disease
OSTEO[illegible]
  [illegible] 1277—ab
  [illegible], Primer on Rheumatic Diseases, *530
[illegible]
  [illegible] [Green] 276—ab
  [illegible] repositioning congenital hip dislocation, [Scheibner] 365—ab
OSTEOMA
  multiple, of skull, 1499
OSTEOMYELITIS
  hematogenous (acute), penicillin for, [Wasskönig] 767—ab; [Röhling] 1669—ab

OSTEOMYELITIS—Continued
  hematogenous (chronic), saucerization and bone grafting in, [Bickel] 975—ab
  recording oscillometer in, [Chandler & Dickinson] *901
  treatment, penicillin content in bone marrow during, [Juch] 560—ab
OSTEOPATHS
  A.M.A. Committee for the Study of Relations Between Medicine and Osteopathy, 734; (Reference committee reports) 739; 740
  A.M.A. resolution on osteopathy, 837
  applicants examined in basic sciences, 1952, also 1927-1952, *450; *451
  failures before state boards, in 1952, *423
  graduates registered by state boards, 1948-1952, *433; *434; *435
  history of osteopathy and the osteopathic concept, 735
  number and distribution of osteopathic physicians, 737
  schools (6), list of, course and quality of instruction, 736
OSTEOPOROSIS
  alkaptonuric, [Bürger] 1277—ab
OSTEOSARCOMA
  of bones, treatment, [McCarroll] *298
OTARION Hearing Aid, Model H-1, Custom "5," 821
OTITIS MEDIA
  aerotitis media especially with jet transport, [Hyde] 274—ab
  suppurative, indications for mastoidectomy, 1584
  treatment of streptococcic infections in the home, [Breese] *10
OTOLARYNGOLOGY: See also Larynx
  cardiac arrest during operations in, [Hosler] 1556—ab
OTORHINOLARYNGOLOGY
  French Congress of (51st), 1724
OTOSCLEROSIS
  [illegible] [Passe] 1069—ab
[illegible] Hospitals
[illegible] rocytes
[illegible], Ovulation
  cancer, androgen therapy, 1394
  salpingolysis after covering ovaries with amnion membrane, [ten Berge] 370—ab
  surgery, removal of normal ovaries, [McCorriston] 1270—ab
OVERLAND BRAND Dietetic Pack White Meat Tuna, 45
OVERVENTILATION: See Respiration, hyperventilation
OVERWEIGHT: See Obesity
OVIDUCTS
  inflammation, right upper quadrant pain in salpingitis, [Holm-Nielsen] 1669—ab
  ligation in Rh-negative mother, 295; (reply) [Cone] 1500
  salpingolysis after covering ovaries with amniotic membrane, [ten Berge] 370—ab
OVULATION
  crystallization test of cervical mucus [da *Paz]* 1372—ab
OXALATES
  [illegible] 1082
[illegible]
  [illegible] year progress [illegible] *1322
[illegible]
OXYGEN: See also Pneumoperitoneum; Pneumothorax, Artificial
  assay of resuscitation procedures, [Swann] 479—ab
  deficiency, neonatal anoxia cause of mental deficiency, [Levinson & Goldberg] *786
  in Blood: See Blood
  Quotient: See Metabolism, basal
  tent, Continentalair Iceless, 531
  tent, Ohio, Model 90A, 821
  therapy, method and machine for resuscitation of newborn, [Mann] *1333; (correction) *1643*
  therapy, modified mask for giving ether, air and oxygen simultaneously, [Stodsky] *1714
  [illegible] respiration in bulbar [illegible] 757—C
  [illegible] Oxygenaire, 333
  [illegible] eless, Model E, 333
[illegible]
  proteins as plasma expanders, [Hartman & Behrmann] *1117
OXYTETRACYCLINE (Terramycin)
  N.N.R., (Pfizer) 333
  toxicity: fatal fungus infections (Candida albicans), [Brown & *others]* *206
  toxicity: serum sickness, [Johnson] 1734—ab
  treatment, cross resistance and induced sensitivity to, [Fusillo] 87—ab
  treatment, cross resistance to, [Finland] 190—ab
  treatment, misuse of troches, 533—E
  treatment of bacterial meningitis, [Alexander] *662
  treatment of subphrenic abscess with large doses, [Zaslow & Sachs] *1213
  treatment of trachoma, Turkey, 1455
  treatment plus aureomycin and chloramphenicol in refractory urinary tract infections, [Eisenberg] *1302
  treatment plus chloramphenicol, effect on various bacteria, Turkey, 1363
  treatment plus chloramphenicol in endocarditis, [Garrido Lecca & Tola] *913

OXYTETRACYCLINE—Continued
treatment plus corticotropin in peritonitis, [de Ruiter] 97—ab
treatment, plus penicillin and aureomycin, effects of on tonsillitis, [Denny] 189—ab
OXYTOCIN
intravenous infusion in labor, [Kaufman] 558—ab
OXYURIASIS
diagnosis, various technics evaluated, [Watson] *93—ab*
investigations on, Mexico, 1360

P

PAS: See Acid, *p*-aminosalicylic
PR: See Public Relations
PACK'S Method: See Melanoma
PAGEANT: See Journals
PAIN: See also Backache; Headache; Neuralgia; Sciatica; under names of specific diseases, organs and regions as arms; *extremities; shoulder*
Burning: See Causalgia
local, from streptomycin calcium chloride intramuscularly, [Long & others] *25
postoperative, reduction, [Lewis] 1479—ab
referred, visceral aspects of shoulder pain, 1600—ab
Relief of: See also Anesthesia; Nerves, block; Nervous System, Sympathetic, block; Sympathectomy
relief of, in acute pancreatitis, [Berk] *1
relief of, in cancer, [Bonica] 972—ab
relief of, in cancer with transorbital lobotomy, [Freeman] *487
PALATE
Cleft Palate Institute, appoint director, 857
herpes zoster on, [Stepan] 1575—ab
PALESTINE: See Israel
PALMER (Lowell M.) Fellowship: See Fellowships
PALPATION: See Pharynx
PALSY
Bell's: See Paralysis, facial
Cerebral: See Paralysis, cerebral
Shaking: See Paralysis agitans
PAN AMERICAN
Confederación Médica Panamericana, Colombia, Dr. Acosta appointed president, 753
congress (first) of International College of Surgeons, Brazilian section, 1543
PANCREAS: See also Diabetes Mellitus
cystic fibrosis, meconium ileus associated with; successful management, [Montgomery] *225; [Blegen & others] 1261—C
cystic fibrosis, trypsin injection for, [Innerfield & others] *597
enzymes to prevent intestinal adhesions, [Cavallini-Francolini] 1078—ab
function tests, reviewed, [Dreiling] 1472—ab
inflammation (acute hemorrhagic), serum albumin therapy *[Kenwell] 280—ab*
inflammation, acute postoperative pancreatitis, [Dunphy] 1072—ab
inflammation (chronic relapsing), left splanchnicectomy in, [Mallet-Guy] 371—ab
inflammation, management of acute pancreatitis, [Berk] *1; (correction) 465
inflammation (relapsing), transduodenal [illegible] [Major] 92—ab
[illegible] strectomy for Duo- [illegible] into the Pancreas, film review) 1068
Secretion: See also Insulin
secretion, human bile containing pancreatic juice for irrigating ileum and colon in meconium ileus, [Blegen & others] 1261—C
tumors, adenoma involving islands of Langerhans, [Underdahl] 89—ab
tumors, adenoma, surgery for hypoglycemia from, *[Voszschulte] 283—ab*
PANCREATITIS: See Pancreas inflammation
PANNICULITIS
Primer on Rheumatic Diseases, *529
PAPER: See Cardboard; Newspapers; Sandpaper
Prizes for Papers: See Prizes
Reprints of Papers: See Journals
PARA-AMINOSALICYLIC ACID: See Acid, *p*-aminosalicylic
PARABENS
fungistatic activity, [Siegel] 1733—ab
PARAFFIN, Liquid: See Petrolatum, liquid
PARAGANGLIOMA: See Pheochromocytoma
PARALDEHYDE
treatment (intensive narcosis) of epilepsy, [Putnam & Rothenberg] *1400
treatment of delirium tremens, [Smith] *384
PARALYSIS: See also Hemiplegia; Paraplegia
Agitans: See also Parkinsonism
agitans, frequent desire to urinate in 72-year-old man, 1586
Cerebral: See also Paralysis, spastic
cerebral, course in, 464
Cerebral Palsy Institute, New York, 746
cerebral, United Cerebral Palsy, (appoints medical director) 618; (Max Weinstein Award, *nominations open*) 860
facial, [Lathrop] (with herpes zoster) *20; (various types) *21; (Bell's palsy) *22
facial, cortisone treatment, [Rothendler] 1369—ab
General: See Dementia Paralytica
PARALYSIS—Continued
hemorrhage with, hazards of lobotomy, [Freeman] *489
Infantile: See Poliomyelitis
oculomotor, in diabetic, 656
of shoulder, Italy, 71
Respiratory: See also Poliomyelitis
respiratory, cerebral lesions due to anoxemia in, Paris, 868
spastic, National Spastic Society, London, 1549
PARANASAL SINUSES: See Sinusitis, Nasal
PARAPHOS: See Parathion
PARAPLEGIA
census of paraplegics, Sweden, 473
in gout; sodium urate deposits in spinal canal, [Koskoff & others] *37
spastic, urethral spasm prevents withdrawal *of catheter, [Johnson] 1564—ab*
PARASITES
Intestinal: See Intestines; Teniasis
typhus in rats and rat ectoparasites, *[Strandtmann] 1569—ab*
PARATHION
committee report on insecticides containing, sold under various names, *819; *820
*poisoning, change in electrolytes in, [Annis & Williams] *594*
poisoning in citrus grove operations, [Williams] 1071—ab
PARATHYROID
Primary hyperparathyroidism, (film review) 272
tumors, multiple adenomas involving, [Underdahl] 89—ab
PARENTS: See also Maternity; Paternity
congenital mental deficiency and sterilization of, 655
PARENZYME: See Trypsin
PARESIS: See Dementia Paralytica
PARESTHESIA: See also Acroparesthesia
after fracture of cervical spine, 774
after use of antibiotics, 1290
PARINAUD'S SYNDROME
oculoglandular, and cat scratch disease, 1717—E
PARKINSONISM: See also Paralysis agitans
treatment, carbon dioxide inhalation, [Fay] *1623
PAROTID DUCT
portion of replaced by plastic tube, [Perkins] 1376—ab
PAROTID GLAND
tumors, 4 groups, [Byars & Ackerman] 354—C
tumors (recurrent or persistent), fate of, [Slaughter] 1568—ab
PAROTITIS, EPIDEMIC: See Mumps
PARROTS
Fever: See Psittacosis
reimpose ban on, London, 72
PARTNERSHIPS
medical, malpractice insurance rates in, A.M.A. resolution on, 843; 844
PARTURITION: See Labor
PAS: See Acid, *p*-aminosalicylic
PASSANO
Foundation: See Foundations
Prize: See Prizes
PASTEUR Award: See Prizes
PATERNITY
blood grouping tests for exclusion of, results in 108 cases, [Unger] *1006
can twins have different fathers? 199
PATHOLOGY: See also Disease
digestive, course in, 63
International Society for Geographical Pathology, [Karsner] 355—C
residencies in, in VA hospital, (Topeka) 179; (Texas) 1062
Scaife fellowships in, Pa., 1640
PATIENTS: See also Disease; Medical Service; *Surgery; under names of specific diseases*
A.M.A. resolutions on billing for cooperative care of patient by 2 physicians, 844
anesthesiologist's responsibility to, (Chairman's address) [Whitacre] *1407
charter seeks later hospital waking hour, London, 1454
Chronically Ill: See Disease, chronic
Committee to Hear Complaints from: See Societies, Medical
Convalescence: See Convalescence
Home Care: See Home care
Hospital: See Hospitals
physician relationship, 1613—ab
position of, on operating table, 32—ab
Rehabilitation: See Rehabilitation
relationship to other patients and to hospital personnel, [Higgins & Kaplan] *109
surgery and medical morality, [Del Regato] 77—C
Transport of: See Ambulances
PAY: See Income, Wages
for Physicians Services: See Fees
PEDIATRICS: See also Children; Infants
clinics in Denver, 615
course in, Tenn., 173
diseases, significance of potassium, International Congress discusses, 625
Emergency Maternity and Infant Care Program: See Emergency
National Congress (6th), Chile, 351
precautions in immunization procedures, [Sauer] *1314
PEDIATRICS—Continued
refresher course, N. Y., 172
residency fellowships by American Academy of Pediatrics, 464
Tucker Memorial Fund 2 million bequest to Western Reserve, O., 339
PEDICULICIDES
Committee report on names for, *820
PEIPING UNION MEDICAL COLLEGE
approved by A.M.A. for list of foreign *medical schools, 186*
PELGER-Huet Anomaly: See Leukocytes
PELVIS: See also Hip; Thigh
fractures, genitourinary complications, [Newland] *1515*
obstetric fracture-dislocation; pelvis as shock absorber, [Urist] *127
PEMPHIGUS: See also Epidermolysis bullosa
vulgaris, corticotropin and cortisone in, [Aquilina] 478—ab
PENCILS
green painted, dermatoses among office *workers, [Morris] *1218*
PENDIOMID
controlled hypotension with, [Rutkowski] 979—ab
PENETHAMATE HYDRIODIDE (Neo-Penil)
treatment of bronchopulmonary infections, [Barach] 763—ab
treatment vs. procaine penicillin in pneumonia, [Flippin] 764—ab
PENFIELD, WILDER, enters Order of Merit, London, 1454
PENICILLIN
content in bone marrow during treatment of osteomyelitis, [Juch] 560—ab
effect on vitamin-elaborating intestinal bacteria, 564
for inhalation, N.N.R., (Schenley) 921
G (Eskacillin) treatment of streptococcic pharingitis, 1583
G, Neo-Penil in bronchopulmonary infections, *[Barach] 763—ab*
G potassium for oral and sublingual administration, N.N.R., (Lilly; Premo) 921
G, procaine, for aqueous injection, N.N.R., *(Lilly) 333*
G, vs. Neo-Penil and procaine penicillin in pneumonia, [Flippin] 764—ab
G, what serum concentration needed to "cure" str[illegible] 1583
O, [illegible] (description) 13[illegible] of Upjohn) 1339
O, chloroprocaine name accepted by Council, 709
Procaine: See also Penicillin G
procaine troches, reactions to, 533—E; [Kutscher] 1270—ab
supply, production in United Kingdom, 1650
toxicity: acute lung edema, [Strano] 1281—ab
toxicity: anaphylactic shock, [Nikishin] *1473—ab*
toxicity: fatal anaphylaxis in asthma, [Curphey] 1564—ab
toxicity: fatal fungus infections (Candida *albicans*) [Brown & others] *206
toxicity: nonfatal and fatal reactions, [Feinberg & others] *114; (correction) 344
*toxicity: severe immediate constitutional fatal reaction, [Sohval] *1430*
transmission through human placenta, [Raspe] 977—ab
treatment, alone and combined with sulfonamide in gonorrhea, [Horne] 94—ab
treatment, effect in reducing incidence of syphilis and mental disease from syphilis, [Thomas] 363—ab
treatment, effect on bacteriology of nasal sinusitis, Brazil, 70
treatment effect on gonorrhea control, [Lee] 364—ab
treatment, gonorrhea resistant to? 566
treatment, misuse of troches, 533—E; [Kutscher] 1270—ab
treatment of acute hematogenous osteomyelitis, [Waskönig] 767—ab; [Rohling] 1669—ab
treatment of bacterial meningitis, [Alexander] *662
treatment of cavernous sinus thrombophlebitis, Turkey, 1455
treatment of neurosyphilis, 1183
treatment of streptococcic infections in the home, [Breese] *10
treatment, oral, at 12-hour intervals, [Huang] 1560—ab
treatment, oral (Penidural) in children, [Cathie] 1380—ab
treatment, oral, probenecid effect on penicillin in serum, [Frisk] 1384—ab
treatment, oral, with new salt, in scarlet *fever, [Coriell] 1662—ab*
treatment plus aureomycin and oxytetracycline, in tonsillitis, [Denny] 189—ab
treatment plus streptomycin in diphtheria, [Schneider] 976—ab
PENIDURAL: See Penicillin, treatment, oral
PENIS: See also Circumcision
gangrene, from using procaine anesthesia for circumcision? 293
hypospadia, Sørensen's study, Denmark, 1649
nocturnal erections, 986
PENPHENE: See Toxaphene
PENPHOS: See *Parathion*

PENTAMETHYLENE
  1:5-bis (1′-methylpyrrolidinium) di-iodide in tuberculosis, London, 548
PENTOBARBITAL SODIUM (Nembutal)
  poisoning, hemodialysis in treatment, 822—E
PENTOTHAL SODIUM: See Thiopental Sodium; Medicolegal Abstracts at end of letter M
PENTYLENETETRAZOLE (Metrazol)
  diagnostic use in acute barbiturate poisoning, [Fazekas & Koppanyi] 628—C
PEPTIC ULCER
  food allergy in duodenal ulcer, 104
  gastric ulcer and its malignancy, [Soave] 561—ab
  gastric ulcer of greater gastric curvature, [Silk & others] *305
  gastric ulcer (multiple) during phenylbutazone therapy, [Raffensperger] *30
  gastric ulcer with massive hemorrhage after phenylbutazone, [Krainin] *31
  hemorrhage after vagotomy, [Stemplen & Weinberg] *1593
  obstructive jaundice caused by, [Neiman] *141
  pain in, mechanism, [Ruffin] 649—ab
  patients, use of tobacco and alcohol by, 774
  perforated, vagotomy plus suture for, [Jelinek] 1387—ab
  perforation after giving phenylbutazone, [Shields & others] *28
  perforation of duodenal ulcer; hazard of barium meals, London, 71
  surgical aspects, American Gastroenterological Ass'n. committee report, 1236—E
  surgical policy for, [Johnson] 369—ab
  surgical problem of, in childhood, [McAleese] 762—ab
  surgical treatment, Duodenal Ulcer Perforating into Pancreas (film review), 1068
  surgical treatment, late effects of gastric resection, Denmark, 1359
  surgical treatment, physiological effects in duodenal ulcer, [Smithwick] 651—ab
  surgical treatment, vagotomy, duodenal ulcer recurs after, [Stemplen & Weinberg] *1593
  surgical treatment, vagotomy plus simple suture for perforated ulcer, [Jelinek] 1387—ab
  treatment, BA-5473, anticholingeric drugs, 1499
  treatment, licorice, Sweden, 1362
  treatment, methantheline, adiphenine and phenobarbital combined, 1289
  treatment, methantheline bromide, 471; 549
  treatment, methantheline effect on pain and motility in, [Hightower] 649—ab
PERCUSSION
  vibratory and clapping, to prevent postoperative atelectasis, [Palmer] 192—ab
PERFORATION: See Colon; Gastrointestinal Tract; Intestines; Peptic Ulcer; Pharynx
PERIARTERITIS
  nodosa and sarcoidosis, [Jackson] 559—ab
  nodosa, Primer on Rheumatic Diseases, *413
  nodosa, treatment: cortisone, vitamins, acetylsalicylic acid, [Dent] 1733—ab
PERIARTHRITIS
  of shoulder and coronary disease, [Robinson] 767—ab
  of shoulder, Italy, 71
PERICARDIOTOMY
  for hemopericardium, [Rose & others] *1221
PERICARDITIS
  acute, symptoms in infectious mononucleosis, [Soloff & Zatuchni] *1527
  decortication of heart, [Skinner & Farr] *234
  exudative, pneumopericardium treatment, [Russo] 1480—ab
  tuberculous, surgical treatment, [Betts] 1670—ab
PERICARDIUM: See also Hemopericardium
  audible chest noises from, [Bean] *1297
  cardiopericardiopexy in coronary disease, [Thompson & Plachta] *678
  hemorrhage during anticoagulant therapy of myocardial infarct, [Rose & others] *1221
  Inflammation: See Pericarditis
PERIODICALS: See Journals
PERITONEOSCOPY
  in malignant lesions of abdomen, [Zoeckler & others] *1617
PERITONEUM: See Pneumoperitoneum
  Inflammation: See Peritonitis
  Irrigation (artificial kidney): See Kidneys
PERITONITIS
  Candida, [Reynell] 1479—ab
  etiology: ascarides perforates intestines, Turkey, 1454
  meconium, after perforation of intestines in fetal life, [Olnick & Hatcher] *582
  treatment, corticotropin combined with antibiotic, [de Ruiter] 97—ab
PERNICIOUS ANEMIA: See Anemia, Pernicious
PERSONALITY: See Psychosomatic Medicine
PERSPIRATION: See Sweat
PERTHES Disease: See Osteochondrosis
PERTUSSIS: See Whooping Cough
PESTICIDES
  aerial application, 1682—ab
  A.M.A. Committee on, (report on toxicology in medical curriculum) *709; (report on use and abuse of names for pesticides) *818; (health problems of vaporizing and fumigating devices) *1232; 1238—E
PETECHIOMETER
  to determine capillary fragility, [Perry] 1373—ab
PETHIDINE: See Meperidine
PETIT MAL: See Epilepsy
PETROLATUM
  liquid, danger of nebulized spray containing, 1290
PETROLEUM PRODUCTS
  trauma as cocarcinogen in oil worker, [Kotin] 1170—ab
PHANTOM LIMB: See Amputation
PHARMACEUTICALS
  control of, Belgium, 1255
  industry, interdependence of medical profession and, [Sevringhaus] *1522
  New York Pharmaceutical Ass'n. contest on eliminating drug duplication, 860
  sterilized by ionizing radiation, [Tarpley] 1373—ab
PHARMACISTS
  Belgian Ass'n. of, control of drugs, 1255
  use of metric system by A.M.A. and others, 1045—E
PHARMACY
  A.M.A. Council on: See American Medical Association
  German Institute for Pharmacology, 1724
  history of, [Sevringhaus] *1522
PHARYNGITIS
  streptococcic, what penicillin serum concentration sufficient to "cure"? 1583
  treatment, erythromycin, [Herrell & others] *1605
  treatment, penicillin, aureomycin and oxytetracycline, [Denny] 189—ab
PHARYNX: See also Nasopharynx; Throat
  cancer, late development in irradiated areas, [Holinger] 1072—ab
  diverticula (pulsion), transverse incision in, [Perzik] 1377—ab
  focal infection effect on renal function, Italy, 1452
  palpation to detect occlusion of internal carotid artery, [Dunning] *321
  perforating wound (severe) from lead pipe, [Black & McClintock] *519
  swabs, cultivate Koch's bacillus from, [Saenz] 1385—ab
PHEMISTER'S Method: See Bones, grafting
PHENACIDE: See Toxaphene
PHENATOX: See Toxaphene
PHENINDIC[illegible] dulin)
  N.N.R., [illegible] 142;
  (Danilo [illegible]
PHENOBARBITAL
  poisoning, hemodialysis in treatment, 822—E
  preventing postoperative vomiting, [Colombo] 1484—ab
  sensitivity syndrome, [McGeachy] 1657—ab
  sodium and dibucaine hydrochloride in ventricular tachycardia, [Bisteni] 1171—ab
  treatment plus methantheline and adiphenine in peptic ulcer, 1289
PHENOL
  containing preparations, blood phenol level after topical use, [Ruedemann & Deichmann] *506
PHENTOLAMINE (Regitine)
  hydrochloride, N.N.R., (description) 1533; (Ciba) 1534
  methanesulfonate, N.N.R., (description) 1534; (Ciba) 1535
  treatment of hemiplegia resulting from pheochromocytoma, [ReMine & others] *808
PHENYLBUTAZONE (Butazolidin; Butapyrin; Irgapyrin)
  toxicity: agranulocytosis fatal, [Steinberg & others] *33
  toxicity: agranulocytosis; precautions suggested, [Strazza] 183—C
  toxicity: gastric ulcer with massive hemorrhage, [Krainin] *31
  toxicity, London, 1651
  toxicity: multiple gastric ulcers, [Raffensperger] *30
  toxicity: peptic ulcer perforation, [Shields & others] *28
  treatment of gout, [Smyth] *1106
  treatment of rheumatoid arthritis, [Achari] 1177—ab
PHENYLETHYL ALCOHOL
  preservative for ophthalmic solutions, (Council article) [Theodore & Feinstein] *1633 (footnote 6)
PHENYLINDANDIONE: See Phenindione
PHENYTOIN: See Diphenylhydantoin Sodium
PHEOCHROMOCYTOMA
  clinicopathological study; surgery successful, Brazil, 1451
  diagnostic test with phentolamine methanesulfonate, N.N.R., (description) 1534
  hemiplegia with, [ReMine & others] *808
PHEOPHYTINS
  copper or nickel, as commercial chlorophyll deodorants, [Thimann] 869—C
PHI Delta Epsilon Lecture: See Lectures
PHILADELPHIA
  plan for home care of chronically ill persons, [Udell] *990
PHILATELY: See Postage Stamps
pHisoHex: See Hexachlorophene
PHLEBITIS: See also Thrombophlebitis
  treatment, heparin intradermally, [Olivier] 1485—ab
PHLEBODYNIA
  new, possibly epidemic disease, [Pearson] 968—ab
PHLEBOTHROMBOSIS
  phlebodynia, new, possibly epidemic disease, [Pearson] 968—ab
  treatment, trypsin injection, [Innerfield & others] *597
PHLEBOTOMY: See Venesection
PHONE: See Telephone
PHONOCARDIOGRAPHY: See Heart
PHOSKIL: See Parathion
PHOSPHATASE
  in Blood: See Blood
PHOSPHORUS
  in Blood: See Blood
  lipid, serum cholesterol, and Sf 12-20 lipoproteins, [Katz] 357—ab
  radioactive, treatment of polycythemia, 880
PHOTOELECTRIC
  colorimeter to determine hemoglobin levels, 484
  hemoglobinometric determinations, differences in; use of voltmeter, (reply) [Remer] 108
PHOTOENGRAVING
  finisher, health hazards for, 1290
PHOTOFLUOROGRAM
  to detect unsuspected gastric neoplasms, [Wigh] 273—ab
PHOTOGRAPHY: See Moving Pictures
PHRASES: See Words and Phrases
PHYSICAL DEFECTS: See Abnormalities; Crippled; Handicapped; Rehabilitation
PHYSICAL EDUCATION: See Athletics; Health education
PHYSICAL EXAMINATION
  annual, (replies) [Hulett; Marks; Barnett] 882
  promoted by women's clubs, 464
PHYSICAL MEDICINE: See Physical Therapy
  A.M.A. Council on: See American Medical Association
PHYSICAL REHABILITATION: See Rehabilitation
PHYSICAL STRESS: See Stress
PHYSICAL THERAPY: See Baths; Diathermy; Cold, therapeutic use; Radium; Roentgen Therapy; Ultrasonics; Ultraviolet Rays; under names of specific diseases
  A.M.A. Council on: See American Medical Association Council on Physical Medicine and Rehabilitation
  International Congress of World Confederation for (first), 950
  Orthopedic Hospital establishes scholarship plan for therapists, Calif., 1054
  schools of, approved by A.M.A., *162
  therapists in hospitals, statistics on, *159; *160; 165—E
PHYSICALLY HANDICAPPED: See Handicapped
PHYSICIANS: See also Economics, Medical; Medical Jurisprudence; Medical Service; Medicine, profession of; Surgeons
  Alien: See Physicians, foreign
  alleged physician who uses name Dr. Samuel Pike Hall, 1344
  A.M.A. resolution on establishing Bureau to deal with relationships between physicians and technologists, 728; 740
  A.M.A. resolution on ethical relationships between, 840
  A.M.A. resolution on malpractice insurance rates in medical partnerships, 843; 844
  A.M.A. resolution on Principles of Medical Ethics on billing for cooperative care of patient by two or more physicians, 844
  A.M.A. resolutions on public criticism of, 839; 840
  A.M.A. resolution on remarks of Commander of American Legion on "equalization pay" for physicians, 855
  A.M.A. resolution on subscription to *Today's Health* to be deducted from $25 dues and sent to each physician, 843
  American Medical Society in Vienna, [Kline] 184—C; [Castle] 266—C
  American, Serving Overseas: See Korean War
  avocations, Academy of General Practice art contest, N. Y., 1154
  avocations, American Physician's Art Association, New York meeting, 716
  avocations, exhibit of plastic arts by during World Medical Association, 748
  avocations, Leisure Corner, *964; *1364; [Gebhard] 1732—C
  Awards to: See Prizes
  Bills: See Fees
  British, divided over practices, 1454
  British, medical defendant, London, 1453
  cancer of lung in, [Wynder] 1072—ab
  careers of applicants for Rockefeller research fellowships, [Bowen] *693
  continuation courses for, July 1, 1953, to Jan. 15, 1954, 612—E; *629
  Courses for: See Education, Medical, graduate
  Deaths: See list of Deaths at end of letter D
  Draft Legislation regarding: See Medical Preparedness
  Education of: See Education, Medical
  Emergency Calls: See Emergency
  English: See Physicians, British
  epileptic, [Lennox & Markham] *1694

PHYSICIANS—Continued
  Ethics: See Ethics, Medical
  examined in basic sciences, 1952, also 1927-1952, *450; *451
  expel from our ranks those who are unethical, dishonest, and unfair, [McCormick] *486
  Federal Income Tax: See Tax
  Fees: See Fees
  Fellowship for: See Fellowships
  Foreign: See also other subheads as Physicians, British
  foreign, as interns and residents in U. S., statement by Office of Defense Mobilization, [Aufranc] 869—C
  foreign, examination by National Board, *452; *454
  foreign, Nat'l. Committee for Resettlement of, statement, [Burgess & Graef] 1260—C
  foreign, need journals, [Castle] 266—C
  foreign, representing additions to profession, 1952; 1950-1952, *448; 456—E
  Foreign-Trained, Licensure of: See Licensure
  give percent of fees for using hospital, 728
  Graduate Work: See Education, Medical
  Hospital: See Hospitals
  iatrogenic heart disease, 457—E
  Impostors preying on: See Impostors
  in Service: See Armed Forces; Army, U. S.; Korean War; Navy, U. S.
  Income: See Income
  Income Tax: See Tax
  Industrial: See Industrial Health
  Irish, disapprove "White Paper," London, 1063
  Killed in Service: See Korean War, Heroes
  Korea, A.M.A. resolution on expression of appreciation to, 854
  law degrees to 3, D. C., 535
  Lectures honoring: See Lectures
  Licensure of: See Licensure
  Malpractice by: See Malpractice
  Medals for: See Prizes
  medical articles in lay magazines: "How much should your doctor charge?" and "How to choose your doctor," 924
  Medical Responsibility: See Malpractice; Medical Jurisprudence; Medicolegal Abstracts at end of letter M
  Memorial: See also Fellowships; Lectures; Prizes
  memorial, Barlow memorial fund, Ark., 1246
  memorial, Fetterman Memorial fund for cancer research, Ohio, 1055
  memorial, Gerald B. Webb Memorial Laboratory, Colorado, 943
  memorial, Karl A. Meyer Residence Hall at Cook County Hospital, (picture), 1153
  memorial, medical fund named for Dr. Norwood, Ark., 1346
  memorial, plaque dedicated to Dr. Claude W. *Munger, 616*
  memorial to Dr. W. S. Keller, Md., 945
  memorial wading pool honoring Dr. McCulloch, Ohio, 1247
  Methodist Hall of Fame in Philanthropy, includes names of, 1057
  Military Service: See Korean War; Medical Preparedness
  Negligence of: See Malpractice
  Osteopathic: See Osteopaths
  part in rehabilitation, 235
  Partnerships: See Partnerships
  patient relationship, 1613—ab
  placement conference, A.M.A. resolutions on, 846
  placement service activities, conference on, (Council article) *552
  placement service, *A.M.A. survey of those* released from active military service, (President's page) 1239
  Portraits: See Portraits
  portrayal in television and radio advertising, 822—E; (A.M.A. resolutions on) 847; 848
  positions in state service, W. Va., 340
  positions open, in Canal Zone, 1542
  positions, requirements for Health Center appointment of New York Hotel Trades Council, [Guidotti] *789
  Postgraduate Education: See Education, Medical, graduate
  Practicing: See also Medicine, practice; Physicians, supply
  practicing, A.M.A. resolution on General Practitioner Award, 843
  practicing, changing general practitioner, 1105—ab
  practicing, how they can reduce drug expenditures, London, 1651
  practicing, 1,000 consecutive residence visits analyzed, [Couter & others] *1704
  practicing, prerequisite for Specialty Board Certification of general practitioner, 728
  practicing, responsibilities of general practitioners, London, 1258
  practicing, today's family doctor, 1433—ab
  Prescriptions: See Prescriptions
  Prizes for: See Prizes
  Registration: See Harrison Narcotic Act; Licensure
  Resident: See Residents and Residencies
  responsibilities of, under Harrison Narcotic Act, 1634—E
  Royal College of (report on reaching of social medicine) 261; (report on student health services) 262
  Services: See Medical Service; Medical Service Plans
  Specializing: See Specialties
  sports physicians to meet in Austria, 1724
  Statements: See Fees
  statesmanship of, plea for, [Allen] *661
  supply, A.M.A. resolution on derogatory article, "The Doctor Cartel, an Urgent Problem," published in *Home Life*, 847
  supply, American, medicine's report to nation, [McCormick] *486
  supply, distribution in Chile, 547
  supply, DOCTOR FOR YOUR COMMUNITY, A.M.A. Council pamphlet available, 1538
  supply, foreign graduates representing additions to profession, 1952; 1950-1952, *448; 456—E
  supply, how far from a physician? Bulletin 94A published by A.M.A. Bureau, 718
  supply, HOW TO GET A DOCTOR, booklet published by A.M.A., 459
  supply, licentiates representing additions to profession, *427; *432
  supply, medical help for Korea, [Rusk] 476—C
  surgery and medical morality, [Del Regato] 77—C
  Training: See Education, Medical
  veteran, Dr. A. H. Wells, Minn., 1720
  veteran, "Dr. Bailey Day," Wis., 1641
  veteran, Dr. Bear, Wis., 1542
  veteran, Dr. Burley Week, Mich., 1347
  veteran, Dr. Charles E. Thomas, Ind., 536
  veteran, "Dr. F. F. Fledderjohann Day," Ohio, 1541; 1640
  veteran, Dr. George I. Thacher, Kan., 616
  veteran, Dr. H. F. Smith, 82, receives cancer award, 859
  veteran, Dr. Herbert M. Tharp, Ia., 1246
  veteran, Dr. Herbert W. Jury, Kan., 1346
  veteran, Dr. J. H. Combs, Ind., 944
  veteran, "Dr. Norris Day," Ark., 1246
  veteran, Dr. Ole Nelson, retires from Cook County Hospital, 1246
  veteran, "Dr. Reynold's Day," Ky., 1539
  veteran, (4) honored, Drs. Conway, Stewart, Allen, Graves, Ky., 248
  veteran, 50 year club, (Neb.) 463; (Conn.) 615; (Dr. Irons) 744; (S. D.) 1440
  veteran, 50 year pins awarded, Okla., 946
  Veterans (War): See Veterans
  Wages for: See Wages
  women Dr. Leslie S. Kent, first woman president of Oregon State Society, 855
  women, Pan American Medical Women's Alliance, 1723
PHYSICS
  Nuclear: See Atomic Energy; Protons; Radiation, ionizing; Radioactive Isotopes
PHYSIOLOGIST
  pioneer, William Beaumont, centennial of his death, [Stenn] *915; (correction) 1156
PHYSIOLOGY
  course in, Conn., 1638
  experimental, Albert A. Berg Institute for, N. Y., 1439
  International Congress (19th), 1724
PHYSIOTHERAPY: See Physical Therapy
PICA: See Appetite
PICKER (James) Foundation: See Foundations
PICTURES: See Art; Moving Pictures; Physicians, avocation; Portraits; Television
PIGMENTATION: See Skin
  Loss of: See Vitiligo
PIGMENTS: See Dyes; Stains and Staining
PILES: See Hemorrhoids
PILONIDAL SINUS
  abscess, trypsin injection for, [Innerfield & others] *597
  of fingers in barbers, [Waris] 1466—ab
PILOTS: See Aviation
PIMPLES: See Acne
PINE
  tree, fruit of, used as food, Brazil, 470
PINEAPPLE
  Diet-Delight Brand Dietetic Pack, 45
PINTA
  research on, Mexico, 1360
  transmitting agents, Ecuador, 180
PINWORM Infection: See Oxyuriasis
PIPE
  lead, severe perforating wound of head and neck from, [Black & McClintock] *519
PIPERAZINE ESTRONE SULFATE
  N.N.R., (Sulestrex of Abbott) 1339
PIPEROXAN HYDROCHLORIDE (Benodaine)
  hemiplegia resulting from pheochromocytoma, [ReMine & others] *808
PITUITARY: See also Diabetes Insipidus
  Adrenocorticotropic Hormone: See Corticotropin
  Cushing's Syndrome: See Cushing's Syndrome
  Disease: See Acromegaly
  dysfunction, types of hyperglycemia, 376
  hormone, cause of cardiac hypertrophy, [von Metzler] 93—ab
  hormone to stimulate human milk supply, 375
  pathogenesis of essential hypertension, 1435—E
  posterior extract, Thorn's test with, before laparotomy, [Massone] 769—ab
  Simmonds' disease, licorice and cortisone for, [Borst] 1383—ab
  Somatotropic Growth Hormone: See Somatotropin
PITUITARY—Continued
  tumors caused by propylthiouracil, [Moore] 1565—ab
  tumors, multiple adenomas involving pituitary, [Underdahl] 89—ab
PITYRIASIS
  rubra pilaris, vitamin A and D therapy in, Turkey, 182
PLACEBO
  heparin and angina pectoris, [Engelberg] 474—C; (reply to Dr. Engelberg) [Binder] 1066—C
  survey of prescribing by D. M. Dunlop, London, 754
PLACEMENT: See Physicians
PLACENTA: See also Amniotic Fluid; Fetus
  blood serum in treatment of rheumatoid arthritis, [Spielberg] 1264—ab
  circumvallate, [Paalman] 874—ab
  grafts for retinitis pigmentosa, Turkey, 1455
  grafts implanted and extract injected in painful articular disease, [Uranga] 1672—ab
  tissue therapy (Filatov's), mechanism of action, [Li Voti] 1736—ab
  transmission of penicillin, [Raspe] 977—ab
  tumors, hydatidiform mole, [Hinglais] 288—ab
  tumors, hydatiform mole and toxoplasmosis, [Bleier] 480—ab
PLAGUE
  infected fleas, 538
PLANES: See Aviation
PLANNED Parenthood: See Contraception
PLANTAR Warts: See Verruca
PLANTS: See also Ammi; Ragweed; Weeds
  Medicinal: See Herbs
  poisoning in child simulating diabetic coma from eating berries, [Rascoff & Wasser] *1134
  why are they removed from patients' rooms in hospitals? 1580
PLANTTHION: See Parathion
PLASMA: See also under various subheads *of Blood*
  Antihemophilic: See Antihemophilic Plasma
  deepfreeze stored; irradiation with ultraviolet light; inactivation of virus by cold, 107
  expanders: polyvinyl pyrrolidone, [Loeffler] 1461—ab
  expanders, present status, [Hartman & Behrmann] *1116
  irradiated dried, pooled, serum hepatitis from, [Murphy & Workman] *1421
  irradiated, serum hepatitis from, [Albrecht & others] *1423
  Normal Human, U.S.P., N.N.R., (Courtland) 1339
  thromboplastin component in hemophilia, [Soulier] 1385—ab
  Transfusion: See Blood Transfusion of plasma
PLASMODIUM: See Malaria
PLASTIC
  tube to replace portion of parotid duct, [Perkins] 1376—ab
PLASTIC SURGERY: See Surgery
PLATELETS: See Blood platelets; Purpura, thrombopenic
PLAY: See Leisure; Physicians, avocations; Recreation
PLEURA
  allergic reactions to streptokinase-streptodornase given intrapleurally, [Goehring & Grant] *1429
  effusion, cardiac decompensation with, gaseous nitrogen elimination in, [Boothby & others] *1000
  Fistula: See Fistula
PLEURISY
  Purulent: See Empyema
  tuberculous, with effusion, atypical tuberculin reactions in, [Arany] *491
  tuberculous, with effusion, bed rest in, [Mitchell] 1464—ab
PLEURODYNIA, EPIDEMIC
  Coxsackie virus cause of herpangina and, [Kravis] 362—ab; [Schlack] 367—ab
  Coxsackie virus isolated from patients with, [Thordarson & others] *814
  in Texas, [Huebner] 362—ab
PLICATION: See Veins, grafts
PLUMBISM: See Lead
PNEUMATIC SUCTION
  applied to legs to induce hypotension in neurosurgery, [James] 768—ab
PNEUMOCOCCUS
  Meningitis: See Meningitis
PNEUMOCONIOSIS: See Pneumonoconiosis
PNEUMONECTOMY: See Lungs surgery
PNEUMONIA: See also Bronchopneumonia
  atypical primary, in pregnancy: effect on fetus, [Kaye] 85—ab
  atypical primary, reversible bronchiectasis occurring after, 105
  atypical primary, trypsin inpection for, [Innerfield & others] *597
  chronic pneumonitis, resection for, [Hood & others] *1185
  inclusion pneumonitis in adult due to salivary gland virus, [Wyatt] 1461—ab
  lobar, reversible bronchiectasis occurring after, 105
  milk-aspiration, [Moran] 1369—ab
  prevention, after abdominal operations, *[Greene] 966—ab*
  Virus: See Pneumonia, atypical primary
PNEUMONITIS: See Pneumonia

PNEUMONOCONIOSIS
and Silicosis (5th),
  farmer's lung, [Fuller] 1387—ab
  in welders, [Charr] *1520
PNEUMOPERICARDIUM
  audible chest noises, [Bean] *1297
  treatment of exudative pericarditis, [Russo] 1480—ab
PNEUMOPERITONEUM
presacral induction,
  sounds heard at a distance from the chest, [Bean] *1293
PNEUMOTHORAX, ARTIFICIAL: See also Tuberculosis of Lung
  air embolism after, 293; (replies) [Bean; Weiss; Birch] 1500
  clinical use; limitations, 705—ab
  extrapleural, streptokinase-streptodornase in hemothorax after, [Miadonna] 97—ab
  pleural, in changing treatment of tuberculosis, [Cutler] *1096
POISON IVY: See Rhus
POISONING: See also under names of specific substances
  Food: See Food poisoning
  in Children: See Children
  Industrial: See Industrial Dermatoses; Industrial Diseases
  toxicology in medical curriculum, (Council report) *709
'aris, 182
ired respiration in,
inhalation (case 6)
  campaign against, Sweden, 1552
  cerebrospinal fluid cell count in, 564; [Grulee] *1587
  cerebrospinal fluid examination necessary in? 198
  complicating pregnancy, [Bowers] 85—ab
  diagnosis, differential, [Grulee] *1587
  epidemic (rural) in Germany, [Klaila] 1177—ab
  Georgia Warm Springs Foundation plans expansion, 944
  institute, Hawaii, 947
  intramuscular injections relation to, [Townsend-Coles] 771—ab
  modern concepts, [Verlinde] 1573—ab
  National Foundation for Infantile Paralysis, (their view on use of gamma globulin, A.M.A. Committee report states) 832; (A.M.A. resolutions on gamma globulin) 849; (5 year March of Dimes grant to U. of Pennsylvania) 1055; (grant to medical social workers) 1155; (March of Dimes grants to various institutions) 1250; 1348; (offers fellowships for psychiatrists) 1441; (March of Dimes establishes new record) 1641
  nonparalytic, follow-up study in 75 cases, [Moskowitz & Kaplan] *1505
  paralytic, large epidemics reflect improved living and sanitary conditions, 677—ab
  paralytic, of injected limb in immunization, [Sauer] *1315
  pregnancy in postpoliomyelitis patient, 655
  prevalence, U. S. 539; 618; 747; 860; 949; 1057; 1155; 1249; 1350; 1442; 1543; 1643; 1723
  prevention, A.M.A. resolutions on gamma globulin, 849
  prevention, distribution and use of gamma globulin, National Research Council statement, 648
  prevention, gamma globulin distributed by USPHS, 50—E; 68; 1648
  prevention, new national campaign, Mexico, 959
  prevention, rabbit virus orally, Paris, 1651
  prevention, supplies of gamma globulin; views of National Foundation on its use, A.M.A. Committee report, 832
  recording oscillometer in, [Chandler & Dickinson] *901
  reporting type of, Ill., 338
  Respirator Center, courses at, Tex., 1248
  respiratory insufficiency (acute) and paralysis, treatment, [Lassen] 286—ab
  symposium on, Ohio, 340
  transmission, excreta from toilet of trains, 1183
  transmission, possibly carried by fruit flies, [Leeming] 77—C; [Garb] 757—C
  treatment, betaine and glycocyamine, [Watkins] 1471—ab
  treatment, emergency equipment, Maine, 1054
  treatment, medical students in place of iron lungs in outbreak, Denmark, 624
  treatment, New York City plan for care of patients in respirators, [Wallace & Baumgartner] *1506
  virus in blood of donor, not related to hepatitis, 373
  virus in human blood, [Horstmann] 1565—ab
  virus (Kentucky) from poliomyelitic spinal cord, [Steigman & others] 1066—C
  virus (living) given orally to human subjects, [Jervis] 974—ab
POLIOMYELITIS—Continued
  virus, presence in infectious hepatitis, [Sterne] 1574—ab
POLIOPHOBIA, [Grulee] *1587
POLLENS: See Ragweed
POLLINOSIS: See Hay Fever
POLYARTERITIS: See Periarteritis
POLYCYTHEMIA
  treatment, radioactive substances, 627; 880
POLYETHYLENE
  tube prothesis for trachea, [Craig] 1470—ab
POLYMYXIN B SULFATE (Aerosporin)
  N.N.R., (Pfizer) 142; 333
  treatment of bacterial meningitis, [Alexander] *662
POLYPS
  of colon, dilute contrast mediums in diagnosis, [Potter] 1567—ab
  of colon, search for, by high voltage X-rays, [Gianturco] 1566—ab
  of duodenum, 1499
  of nose after allergic sinusitis, 1676
POLYSORBATE
  effect on cholesterol metabolism, [Sherber & Levites] *682
POLYURIA: See Diabetes Insipidus
POLYVINYL
  tubes, plastic esophageal prosthesis, [Chalnot] 193—ab
POLYVINYLPYRROLIDONE (Kollidon)
  excretion, determined by radiocarbon; [Loeffler] 1461—ab
  synthetic polymers as plasma expanders, [Hartman & Behrmann] *1119
PONTOCAINE: See Tetracaine
POOL: See Swimming Pool
POOR: See Medically Indigent
POPULATION: See Vital Statistics
PORADENITIS: See Lymphogranuloma, Venereal
PORK: See Trichinosis
PORPHYRIA
  acute, [Escande] 1476—ab
  acute, symptoms, [Dö-ken] 1282—ab
  intermittent acute, [Macleod] 1572—ab
PORTAL VEIN
  hypertension, assessment by catheterization of hepatic vein, [Paton] 1573—ab
  percutaneous transhepatic portal venography, [Steinbach] 1377—ab
  portacaval shunt operation with vein grafts, [Theron] 771—ab
PORTRAITS: See also under names of individuals as Blalock; Henderson; Lahey; Martin
  on postage stamps, (Leisure Corner), *1364
  presented to Tulane, La., 1246
POSITION in Space: See Posture
POSITIONS Open: See Physicians, positions open
POSTAGE STAMPS
  medical, exhibit, Cleveland, 464; 946
  medical stamps, (Leisure Corner) *1364; [Gebhard] 1732—C
POSTGRADUATE: See Education, Medical graduate
POSTNATAL: See Infants, Newborn
POSTOPERATIVE: See Surgery
POSTPARTUM: See Puerperium
POSTURE
  Drainage Employing: See Drainage
  Early Rising after Operation: See Convalescence
  position of patient on operating table, 32—ab
  technical modification of routine chest radiographs, [Currie] *1230
  vertigo relieved by traction of cervical spine, [Davis] 1466—ab
  why do kidneys function better when patient is in recumbent position? 1291
POT: See Chimboo
POTASSIUM
  arsenite (Fowler's solution), hemorrhagic
Gay treatment in
ounteracts, [Prick-
  arsenite (Fowler's solution), multiple cancers from [Sommers] 1170—ab
  chloride, fluid and electrolyte balance in burns, [Reiss & others] *1309
  chloride solution, fluid and electrolyte disturbance in prostatism, [Lapides] *1305
  chloride, useful in cardiac resuscitation, [Leeds] *1411
  clinical significance, International Congress of Therapeutics discuss, Spain, 625
  deficiency (severe) in jejunal stricture from ingesting ammonia, [Chassin & Slattery] *134
  depletion from overuse of laxatives, [Schwartz] 970—ab
  depletion, paralytic ileus due to, [Grieve] 980—ab
  in Blood: See Blood
  metabolism in anuric tubular nephropathy, [Dérot] 978—ab
  modifies effect of corticotropin, [Bennett] 1467—ab
  Penicillin: See Penicillin G
  treatment of diabetic coma, [Crampton] 275—ab
POUCH: See Granuloma pouch
POVERTY: See Medically Indigent
POWER, Atomic: See Atomic Energy
PRACTICAL NURSING: See Nurses and Nursing
PRACTICE of Medicine: See Medicine, practice
PRACTITIONER: See Physicians
PRAMOXINE (Tronothane)
  name accepted by Council, 709
PRANTAL
  anticholinergic drugs and gastric secretion, [Kirsner] 649—ab
PRECORDIUM
  noises heard at a distance from the chest, [Bean] *1293
PREFRONTAL Leukotomy; Lobotomy: See Brain surgery
PREGEL (Boris) Award: See Prizes
PREGNANCY: See also Fertility; Fetus; Labor; Maternity; Obstetrics; Placenta; Puerperium
  advisable in patient with cystocele and rectocele? 1582
  after years of sterility: relation to iodine treatment, 1738
  blood circulation, exchange rates with amniotic fluid, [Plentl] 1565—ab
  blood in: hemoconcentration; hemoglobin determinations, 484
  breast atrophy after, 198
  can twins have different fathers? 199
  complications: acute pulmonary edema, [Goldmann] 558—ab
  complications: chorioepithelioma and factors of malignancy, [Hinglais] 288—ab
  complications: diabetes mellitus, [Svanteson] 1485—ab
  complications: diabetes mellitus, care of newborn infant, 105
  complications: hematoma of rectus abdominis, [Chambers] 1571—ab
  complications: infectious hepatitis, [Roth] 358—ab; 1585
  complications: myocardial infarction, normal spontaneous delivery 7 months later, [Brock & others] *1030
  complications: poliomyelitis, [Bowers] 85—ab
  complications: polycystic kidneys, (reply) [Marshall] 108
  complications: pulmonary tuberculosis, prognosis, [Meyer] 284—ab
  complications: purpura likely to recur? 1583
  complications: rheumatic heart disease, [Gorenberg] 278—ab
  complications: rubella in mother: congenital defects in child, preventive use of gamma globulin, [Miralbell-Andreu] 1486—ab
  complications: severe cervical laceration, 375
  complications: sickle cell anemia, 1291
ture of uterus,
endocarditis
l & Wellman] *702
  complications: stress fractures of ribs in successive pregnancies, [Marsh] *26
  complications: toxoplasmosis, 16[illegible]1—E
  complications: viral diseases, their effect on fetus, [Kaye] 85—ab
  complications: volvulus of small intestine, [Halperin & others] *1219
  complications: woman lives 17 years with Hodgkin's disease, Paris, 182
  diagnosis, Chile, 517
  diagnosis, laboratory tests in incomplete abortion, 776
  diagnosis tests: Friedman vs. Richardson, 1292
  Ectopic: See also Pregnancy, heterotopic
  ectopic, complicated, Brazil, 259
  ectopic, ruptured, choice of anesthesia in, 107
  Emergency Maternity and Infant Care Program: See Emergency
  Extra-Uterine: See Pregnancy, ectopic
  heterotopic, ruptured ectopic with intrauterine pregnancy, [Kazmann] 1074—ab
  in amputees, 374
  in postpoliomyelitic patient, 655
  in woman with double cervix, 1395
  Interruption of: See Abortion
t erythro-
79—ab
  roentgen studies during: effect on fetus, (reply) [Schwarz] 776
  sex determination (intrauterine) possible in last trimester? 1582
  sex determination (prenatal) in vaginal smear, [Artner] 371—ab
  Toxemia of: See also Eclampsia
  toxemia of, glomerular filtration and renal blood flow in, [Bucht] 1382—ab
  toxemia of, hyaluronidase in, [Pellizzari] 1671—ab
PREMATURE Infants: See Infants, premature
PREMEDICAL Work: See Education, Medical
PRENATAL: See Fetus; Pregnancy
PREOPERATIVE: See Surgery
PREPALIN: See Vitamins A
PREPAREDNESS, Medical: See Medical Preparedness
PREPAYMENT Plans: See Hospitals, expense insurance; Medical Service Plans
PREPUCE: See Circumcision
PRESCRIPTIONS
  Great Britain's drug bill; how to reduce; use of National Formulary, 1650
  in code, A.M.A. resolution on, 851; (Reference Committee report) 852

- PRESCRIPTIONS—Continued
  - narcotic, responsibilities of physicians, 1634—E
  - oral, codeine on, A.M.A. resolution on amending Harrison Narcotic Act, 849
  - prescribability of proprietaries, London, 1730
  - prescribers' notes, London, 1549
  - prescribing under National Health Service, London, 1453
  - survey of prescribing by D. M. Dunlop, London, 754
- PRESS: See also Journals; Newspapers
  - A.M.A. resolution on statements for publication, 841
- PRESSURE
  - Bandage: See Dressings
  - hydrostatic, to reduce ileocecal intussusception, [Girdany] 1567—ab
  - Negative: See also Suction
  - negative, method and machine for resuscitation of newborn, [Mann] *1333; (correction) 1643
  - negative, phase in mechanical respirators, [Maloney & others] *212
  - positive, in resuscitation asphyxiated newborn, [Beattie & Zwerling] *216
  - sterilization system for ophthalmic solution, (Council article) [Theodore & Feinstein] *1631
- PRESYN: See Allethrin
- PREVENTIVE MEDICINE: See also Immunization Vaccination
  - American Board of: See American Board
  - importance of food in, 1537—E
- PRICE INDEX
  - old and new base periods for, 1341—E; (Bureau article) [Dickinson] *1365
- PRICKLY HEAT: See Miliaria
- PRIEST, I. B. (Mrs.) Treasurer of U. S., remarks at New York Meeting, 856
- PRIMER on Rheumatic diseases, 4th edition, [American Rheumatism Association] *323; *405; *522
- PRIMOSTRUM (Que-Test)
  - name accepted by Council, 709
- PRIODAX: See Acid, iodoalphionic
- PRISCOLINE: See Tolazoline Hydrochloride
- PRIZE FIGHTING: See Boxing
- PRIZES: See also Fellowships; Lectures; *Scholarships*
  - Allen (Raymond B) instructorship awards, Ill., 1246
  - Alvarenga, 1438
  - American Academy of Orthopaedic Surgeons, 538
  - American Cancer Society, 745; 859
  - American College of Chest Physicians, 1642
  - American Dermatological Association, prize essay contest, 1249
  - A.M.A. Committee on Awards, list of awards at New York Meeting, 926
  - A.M.A. Distinguished Service Medal, to Dr. Alfred Blalock, 614—E; 720
  - A.M.A. General Practitioner Award, A.M.A. resolution on, 843
  - American Medical Education Foundation special Award of Merit to R. F. Staudacher, 742
  - American Otological Society, 858
  - American Rheumatism Association, 1247
  - American Urological Association, 1155
  - Bertner Foundation Award, 857
  - Biggs (Hermann M.), 1349
  - Blackwell Awards, 949
  - Blakeslee (Howard W.), (first award) 342; (contest open) 1542
  - Borden annual nutrition awards, 341
  - Capps (Joseph A.), 948
  - Casselberry Award, 860
  - Ciba Award, in endocrinology, 948
  - Cross (Frank B.), 249
  - Cross of Belgian Royal Order of the Lion, 1540
  - Fiske Fund, 1722
  - Goldberger Award of 1952, [Sebrell] *42; 49—E
  - Goodwill Industries of New York, 60
  - Howard Award, 945
  - Industrial Medical Association, 1347
  - Kaiser (A. D.), 746
  - Kimble methodology research award (to Ad Harris) (candidates for, solicited) 540
  - Knapp Medal, A.M.A. Section action on awarding, 937
  - La Cruz del Sud (Southern Cross), 1246
  - Laennec, 538
  - Lane (Carol) Awards, 464
  - Lasker Awards, 1441
  - McCarthy (Joseph), 1152
  - Michigan State Medical Society, physicians receive scrolls, 59
  - Milwaukee Academy of Medicine and Rogers Memorial Sanitarium, essay contest, 1056
  - Mississippi Valley Medical Society, contest winners, 1249.
  - Morrison (A. Cressy) in natural science, 948
  - New Jersey Orthopaedic Society, 1247
  - New Year Honour List, London, 1454
  - New York Academy of Sciences, (contest), 948
  - New York Pharmaceutical Association, (contest on drug duplication) 860
  - Osborne and Mendel award, 341
  - Passano Foundation Award, 536
  - Pasteur Award, 171
  - Pregel (Boris) in Field of Natural Radioactive Substances, 948
- PRIZES—Continued
  - Proctor Medal, 859
  - Ray (Isaac) Award, 948
  - Ricketts, 1161
  - Ross (Will) Medal, National Tuberculosis Association, 948
  - Rush (Benjamin) 1640
  - Saint Vincent, (first essay contest) 1543
  - Schering Award, (competition open) 341
  - Smith (Theobald) Award, 1441
  - Snow (William Freeman) social hygiene, 1155
  - Società Italiana di Reumatologia, 1056
  - Squibb Institute for Medical Research Award, 948
  - Stengel (Alfred) Memorial Award, Ohio, 1348
  - Television Award to A.M.A. Bureau of Health Education, 168
  - United Cerebral Palsy-Max Weinstein Award, nominations open, 860
  - U. S. Department of Health, Education and Welfare, Superior Service Award, 1161
  - Van Meter, 1441
  - Wenner-Gren Foundation of New York Academy of Sciences, 948
  - Wien (Leonard A.) Award for Outstanding Research in Cancer Cytology, New York, 616
- PROBENECID (Benemid)
  - effect on penicillin content of serum after oral use, [Frisk] 1384—ab
  - treatment of gout, [Smyth] *1106
- PROCAINE AMIDE HYDROCHLORIDE (Pronestyl)
  - toxicity: allergic skin reaction, [Koffler] *28
  - toxicity: fatal reaction, 1738
  - treatment plus hexamethonium in controlled hypotension, [Mason] 282—ab
  - treatment plus procaine hydrochloride in cardiac arrhythmias, Chile, 351
  - treatment useful in cardiac resuscitation, [Leeds] *1411
- PROCAINE HYDROCHLORIDE
  - esterase test in hepatic disorders, [Hazard] 1078—ab
  - Penicillin: See Penicillin
  - toxicity: allergy with 3 fatalities, [Davis & Bryce-Smith] 477—C; [Ryan & Shouldice] 1554—C
  - treatment, injection cures plantar warts, [Branson] 1471—ab
  - treatment, intravenous to control pain in acute pancreatitis, [Berk] *2
  - treatment plus procaine amide in cardiac *arrhythmias*, Chile, 351
  - treatment useful in cardiac resuscitation, [Leeds] *1411
- PROCTOLOGY: See Rectum
- PROCTOR Medal: See Prizes
- PROFESSIONS: See also Dentistry; Medicine; Nurses and Nursing
  - education for professional services, 1406—ab; 1618—ab
- PROGESTERONE
  - treatment of biliary dyskinesia, [Adlercreutz] 1275—ab
  - treatment plus estradiol and testosterone in menopause, [Juster] 1280—ab
  - U.S.P., N.N.R., (Vitarine) 921
- PROLACTIN
  - stimulating human milk supply, 375
- PRONESTYL: See Procaine Amide Hydrochloride
- PROPRIETARIES
  - prescribability, London, 1730
  - reducing Great Britain's drug bill, 1650
- PROPYL ALCOHOL: See Isopropyl Alcohol
- PROPYLTHIOURACIL
  - pituitary tumors caused by, [Moore] 1565—ab
  - treatment of hyperthyroidism, [Solomon & others] *201
- PROSEPTASINE: See Benzyl Sulfanilamide
- PROSTATE
  - cancer, confused with granulomatous prostatitis, [Thompson] 1561—ab
  - cancer, intratesticular estrogenic implants in, [Darget] 1276—ab
  - cancer, syringe shield used in injecting radioactive gold, [Getzoff & others] *1431
  - cancer (unusual), [Thompson] 971—ab
  - disease, urethra stricture, 503—ab
  - fluid and electrolyte disturbances in prostatism, [Lapides] *1305
  - hypertrophy, urethral spasm preventing withdrawal of catheter, [Johnson] 1564—ab
  - Inflammation: See Prostatitis
  - Surgery: See also Prostatectomy
  - surgery, hypertension during transurethral resection, 1581
- PROSTATECTOMY
  - Hryntschak's technique, [Foret] 1278—ab
  - retropubic (Millin), osteitis pubis incidence after, [Götzen] 981—ab
  - techniques discussed at medical and surgical meeting, Italy, 1164
- PROSTATITIS
  - granulomatous, confused with cancer, [Thompson] 1561—ab
- PROSTHESIS: See also Limbs, Artificial; Teeth, dentures
  - nylon, in lesions of shoulder, elbow, and finger, [MacAusland] 188—ab
  - plastic esophageal: polyvinyl tubes, [Chalnot] 193—ab
  - tracheal, [Craig] 1470—ab
- PROSTIGMINE: See Neostigmine
- PROTAMIDE
  - hypersensitivity to, [Zdanis] 1461—ab
- PROTAMINE
  - sulfate, determining heparin in blood and body fluids, Paris, 1651
- PROTEIN: See also Albumin; Lipoproteins
  - as plasma expanders, [Hartman & Behrmann] *1117
  - Bound Iodine: See Blood iodine
  - deficiency, trichinosis with liver dysfunction, [Kushlan] *221
  - dietary treatment of hypertension: effect on appetite [Dole] 969—ab
  - fish lens, danger of injecting for cataract, [Breinin] *698; (National Research Council report) *707; 710—E
  - in Blood: See Blood
  - in Urine: See Albuminuria
  - "iodocasein" in obesity, [Bertola] 285—ab
  - packed red blood cells as source of, for parenteral use, [Calloway & Mowrey] *777
  - Protein Foundation, Inc., formed, Mass., 858
  - Sensitivity: See Allergy
  - specific dynamic action in the aged, [Tuttle] 1467—ab
  - substances in cortisone, generalized pruritus from? 1581
  - synthesis and cortisone, [Cagan] 628—C
- PROTEINURIA: See Albuminuria
- PROTESTANT Church: See Methodist Episcopal Church
- PROTEUS
  - mirabilis, cause of diarrhea and endocarditis, [Weiser] 1261—C
  - vulgaris infection of urinary tract, trypsin injection for, [Innerfield & others] *597
- PROTHROMBIN: See Blood prothrombin
- PROTOZOA
  - Intestinal: See Intestines, parasites
- PRURITUS
  - generalized, from protein substances in cortisone? 1581
  - intractable anogenital, corticotropin and cortisone in, [Turell] *806
  - itchy scalp, 1292
- PSEUDOALBUMINURIA
  - telepaque and, [Seedorf & others] *1332
- PSEUDOMONAS
  - aeruginosa infections in children, [Clement] 1573—ab
- PSEUDORABIES
  - multiplication of viruses in strain of *mammalian cells, [Scherer] 273—ab*
- PSITTACOSIS
  - in Britain, 1454
- PSORIASIS
  - climate and, 775
  - treatment, arsenic, multiple cancers from, [Sommers] 1170—ab
  - treatment with Bucky rays or grenz rays, 1395
- PSYCHIATRY: See also Hospitals, psychiatric; Mental Disorders; Mental Health; Neuropsychiatry; Psycho—
  - *Acta Psychotherapeutica, Psychosomatica, et Orthopaedagogica*, new journal, 173
  - American Psychiatric Association endowment fund, 1155
  - clinic care (low-cost), Community Report #1 on, Calif., 54
  - exploitation of mistreated children, *1044*—E
  - Group for Advancement of Psychiatry, 240—E
  - in general hospital, Norway, 73
  - in industry, 240—E
  - increase in service, survey by National Association for Mental Health, 343
  - National Congress of (first), Colombia, 752
  - National Foundation for Infantile Paralysis fellowships in, 1441
  - research, fund for, at Yale, 539
  - residencies in, 258
- PSYCHOLOGY: See also Psychosomatic Medicine
  - of the handicapped, Belgium, 350
  - Pathologic: See Psychiatry
  - training left children, 1584
- PSYCHONEUROSIS: See also Neurosis
  - treatment, carbon dioxide, [Silver] 1175—ab
- PSYCHOPATHIC
  - Hospitals: See Hospitals, psychiatric
- PSYCHOSES: See also Mental Disorders
  - acute, complicating hydralazine therapy in essential hypertension, [Moser & others] *1329
  - premenstrual tension, [Lamb] 1659—ab
  - schizophrenia-like, after brain trauma, [Elsässer] 1276—ab
  - toxic, from overdose of isoniazid, [Chu] 1668—ab
  - use of hypnotics in aging and senile patients, clinical study of Dormison, [May & *Ebaugh] *801*
  - various types, clinical evaluation of prefrontal lobotomy, [Kolb] *1085
- PSYCHOSOMATIC MEDICINE
  - dermatosis, emotional components of, [Frumess] *1417
  - essays on, invited, 1249
  - treatment of "functional" disorders, [Watts & Wilbur] *1192
- PSYCHOSURGERY: See Brain surgery
- PSYCHOTHERAPY
  - effects of hospitalization on clinical status of patients, [Higgins & Kaplan] *109
  - of emotions causing dermatoses, [Frumess] *1417

PUBERTY: See Adolescence
  Precocious: See Adolescence
PUBIC BONE
  Osteitis: See Osteitis, pubic
PUBLIC
  criticism of physicians, A.M.A. resolution on, 849
  list of titles of Committees to hear complaints from the public, 833; (Reference Committee report) 834
PUBLIC HEALTH: See Health, public
PUBLIC RELATIONS
  A.M.A. resolution on, 839
  Grievance or Mediation Committee: See Societies, Medical
  Medical Public Relations Institute (program) 1636
PUBLIC SCHOOLS: See Schools
PUBLIC SPEAKING: See Speaking
PUBLICATION: See under Press
PUERPERIUM
  presumptive amniotic fluid infusion with resultant postpartum hemorrhage, [Reid & others] *227
PULMONARY: See Lungs
  Arteries: See Arteries, pulmonary
  Embolism: See Embolism
  Heart Disease (cor pulmonale): See Heart hypertrophy
  Tuberculosis: See Tuberculosis of Lung
PULMONARY VALVE
  stenosis, improved technique of valvulotomy for, [Søndergaard] 1275—ab
  stenosis in chronic cyanosis, [Selzer] 873—ab
  stenosis, isolated, [Paunier] 875—ab
PULSE
  [illegible] llometer in orthopedic [illegible] & Dickinson] *901
  [illegible] Puncture
PUPILS (students): See Children, school; Students
PURGATIVES: See Cathartics
PURPURA
  chance of recurring in pregnancy, 1583
  in fulminant meningococcus infection, [Bjorklund] 1671—ab
  preleukemic acute human leukemia, [Block & *others*] **1018*
  Primer on Rheumatic Diseases, *531
  simplex: what is cause of tendency to bruise readily, in absence of overt disease? 1289
  thrombopenic acute, with autoagglutination (antiplatelet agglutinin), [Dausset] 1487—*ab*
  thrombopenic, immunologic *mechanisms* in, [Harrington] 1169—ab
  thrombopenic, platelet transfusion to control bleeding in, [Minor & Burnett] *1225
  treatment, corticotropin and cortisone in Schoenlein-Henoch syndrome, [Philpott] 767—ab
PYELONEPHRITIS
  complications: arterial hypertension, [Avendaño] 1574—ab
PYOSALPINX: See Medicolegal Abstracts at end of letter M
PYRAZINAMIDE
  treatment of tuberculous lymphadenopathy, [Cordice] 979—*ab*
PYRESYN: See Allethrin
PYRETHRUM (Kenya Flowers; Pyrocide)
  A.M.A. Committee report on names for pesticides, *820
PYRETOTHERAPY: See Fever, therapeutic
PYREXIA: See Fever
PYRIDOXINE HYDROCHLORIDE
  deficie[illegible] junctions in,
  N.N.R [illegible] 39
  treatment to counteract convulsant effects of *isoniazid*, [*Reilly* & others] *1317
PYRILAMINE
  maleate, N.N.R., (Thylogen of Rorer) 142
PYRIZIDIN: See Isonicotinic Acid Hydrazide
PYROCIDE: See Pyrethrum

Q

Q FEVER
  epidemiology, 1120—ab
  in Great Britain, [Marmion] 1076—ab
QUARANTINE: See Rabies
QUARTERLY Cumulative *Index* Medicus: See American Medical Association
QUARTZ Lamp: See Ultraviolet Rays
deQUERVAIN'S Disease: See Thyroiditis
QUE-TEST: See Primostrum
QUESTIONNAIRE
  opinion survey of medical care, Mecklenburg *County*, N. C., [Welton] *1145
QUINIDINE
  sulfate for relief of jitter legs, (reply) [Howell] 200
  treatment of extrasystoles, 1494
  treatment of transient ventricular fibrillation, [Schwartz] 874—ab
  treatment, useful in cardiac resuscitation, [Leeds] *1411
QUININE
  poliomyelitis in relation to intramuscular injections, [Townsend-Coles] 771—ab
  treatment of auricular fibrillation, [Weisman] *496; (correction) 950

R

RABBIT
  virus orally to prevent *poliomyelitis*, Paris, 1651
RABIES: See also Pseudorabies
  diagnosis (laboratory), course by USPHS, 68
  immunization (mass) of dogs against, [Fredrickson] 1659—ab
  none, in Australia, 70
  quarantine, Ill., 1054
  rabid foxes in 2 townships, Ill., 247
  street virus strains in hamsters and mice, [Reagan] 190—ab
  vaccine, treatment of malignant melanoma (Pack's method), [de Auster] 98—ab
  vaccine (Yaoi's), treatment of recurrent herpes simplex, [Borda] 286—ab
RACEMORPHAN HYDROBROMIDE (Methorphinan, Dromoran)
  name accepted by Council, 709
RACES: See Indians, American; Negroes
RADIATION: See also Diathermy; Infra-Red Rays, Radioactive Isotope; Radium; Roentgen Rays, Ultraviolet Rays
  burns from X-ray diffraction apparatus simulating infections, [Watrous & others] *513
  frontoparietal, Chile, 957
  high energy electrons for superficial malignant lesions, [Evans] 1462—ab
  Ionizing: See also Radioactive Isotopes
  ionizing, effect on immunity, [Hale] 1668—ab
  ionizing, to sterilize pharmaceuticals, [Tar*pley*] 1373—*ab*
  therapy, cancer of larynx and pharynx develops after, [Hollinger] 1072—ab
  therapy, fellowships in, by American Cancer Society, 747
RADICULITIS: See Sciatica; Spinal Cord
RADIO: See also Television
  advertising, portrayal of physicians in, 822—E; (A.M.A resolutions on) 847; 848
  delayed *broadcast* of inauguration of Dr. McCormick, A.M.A. President, 53
  Frequency Energy Apparatus: See Diathermy
  program at New York Meeting, 716
  transcriptions from A.M.A. Bureau of Health Education, new series, 459
  "You and the World" on CBS, 243
RADIOACTIVE
  Carbon: See Carbon
  Cobalt: See Cobalt
  contamination of hands, soap powder-wood flour mixture, to remove, [Gregory] 365—ab
  Cortisone: See Cortisone
  Gold: See Gold
  Iodinated Albumin: See Blood proteins
  Iodine: See Iodine, radioactive
  Isotopes: See also Radiation, ionizing
  isotopes, course on, at U. of California, 1437
  isotopes, *distribution* in body, International *Congress discuss*, *628*
  isotopes, jet injection, 532—E
  isotopes, therapeutic, 1215—ab
  Phosphorus: See *Phosphorus*
  Scintillation Counter: See Scintillation
RADIOBIOLOGY
  one year instruction in available, 257
RADIOIODINE: See Iodine, radioactive
RADIOLOGY: See also Radiation
  course in, Minn., 59
  health training program, 1062
  International Congress of at Copenhagen, *July 19-24, 748*
  Midsummer Conference, Denver, 1250
  Picker Foundation grants for research, 342
  Radiological Society *of New York State*, organized, 1247
  work, figuring in units, London, 1064
RADIOTHERAPY: See Radiation *therapy*
RADIUM
  gamma irradiation effect on human skin, [Wachsmann] 1488—ab
  hospital, annual report for 1951, Norway, 549
  medical supervision of persons in radiological service, *Norway*, 1550
RADIUS
  fracture (Colle's), causalgia after, 292
RAGWEED
  relief from pollens, 1144—E
RAILROADS
  dining car sanitation, 956
  excreta from toilets on trains; role in transmission of poliomyelitis, 1183
  Pennsylvania, expands medical service, 1642
RASH: See *Eruptions*
RAT-DETH: See *Warfarin*
RATIONING: See Food
RATS
  diagnosis of trichinosis using, [Beck] 274—ab
  typhus in *rats* and rat ectoparasites, [illegible]
  [illegible] es
  [illegible] *disease*, 564
  Raynaud's phenomenon and, [Scherbel] 1463—ab
RAYS: See Radiation
RAZORS
  sterilization to prevent homologous serum hepatitis, (reply), [Murray] 656
READER (Ruth Berger) Fellowship: See *Fellowships*
RECIPROCITY: See Licensure
von RECKLINGHAUSEN DISEASE: See Neuro*fibromatosis*
RECORD Librarians: See Medical Record Librarians
RECORDING: See Oscillometer, recording; Tape recording
RECORDS: See Medical Records
RECREATION: See also Leisure Corner; Physicians, avocations
  County and Community Recreation (film review), 965
RECTOCELE
  repair of; pregnancy advisable? 1582
RECTUM: See also Anus
  Administration by: See Enema
  cancer (inoperable), dienestrol *for*, [Erisbacher] 195—ab
  lacerations from foreign bodies (enema tips, thermometers, suppositories), simplified treatment, [Turell] *136
  procidentia, Thiersch operation for, [Berkowitz] 1563—ab
  surgery, anastomosis of transverse colon to, Brazil, 470
  Varix: See Hemorrhoids
RECUMBENCY: See Convalescence; Posture
RECURRENT FEVER: See Relapsing Fever
RED CELLS: See Erythrocytes
RED CROSS, AMERICAN
  National Blood Program, (need for blood) 538; (A.M.A. Committee report) 831; 833
REDUCING Treatment: See Obesity
REFLEX
  conditioned response to automatic electric alarm in treatment of nocturnal enuresis, [Geppert] *381; [Fischer] 1732—C
REFRESHER Courses: See Education, Medical, graduate
REFRIGERATION
  Therapeutic Use: See Cold, therapeutic use
REFUSE
  garbage fed hogs and trichinosis, 241—E
REGISTRATION: See Harrison Narcotic Act; Licensure
REGITINE: See Phentolamine
REHABILITATION
  A.M.A. Council on Physical Medicine and: See *American* Medical Association
  clinical fellowships in, 349
  doctor's part in, 235
  mission to Korea, 174; [Rusk] 724
REHYDRATION: See Hydration
REITER'S SYNDROME
  [Hall] 1169—ab
  Primer on Rheumatic Diseases, *529
  treatment, corticotropin, [Larson] 1070—ab
RELAPSING FEVER
  research on, Mexico, 1360
RELAXANTS; Relaxation: See Muscles
RELIGION: See also Buddhism
  A.M.A. [illegible] Freedom Under God, 843
[illegible]
REMUNERATION: See Fees; Income; Wages
RENAL: [illegible]
RENDU-OSLER-WEBER [illegible]: See Telangiectasia
RENNIN
  pathogenesis of essential hypertension, 1435—E
  treatment of experimental renal hypertension, [Wakerlin] 1666—ab
REPRINTS: See Journals
REPRODUCTION: See Coitus; *Contraception*; [illegible]; [illegible]; Sterility
RESEARCH: See also under specific headings as Cancer; Eyes
  Clinical Research Board, in relation to National Health Service, London, *1730*
  Council for Economic Security, survey of prolonged nonoccupational illness by, (Council article) *1457
  Fellowships: See Fellowships
  financial compensation for the investigator, [*Allen*] **660*
  Foundation: See Foundations
  Grants for: See Fellowships; Foundations
  Health Research, Inc., formed by New York State, 1721
  medical, by pharmaceutical firms, [Serringhaus]*1525
  medical, *federal* bills on, A.M.A. attitude on, 1047
  medical, Indian Council of, funds for medical school, 748
  medical, Kodak Pty (Ltd.) finances, Australia, 624
  Medical Research Council: See Medical Research Council
  National Research Council: See National Research Council
  program, Coral Atoll, sponsored by National Academy of Sciences, *1162*
  Prizes for: See Prizes
  volunteers to aid, convalescent gamma globulin fails to protect against homologous serum hepatitis, [Drake & others] *690
  volunteers to aid, Walter Reed Society honors Dr. T. Koritz, Ill., 944
RESERVE Officers: See Navy, U. S.
RESIDENCE: See Home
RESIDENTS AND RESIDENCIES: See also Fellowships; Interns and Internships
  American Academy of Pediatrics fellowship residency, 464
  A.M.A. resolution on reevaluation, 848
  approved by A.M.A., additional list, 185
  foreign physicians as residents *in* U. S., statement by Office of Defense Mobilization, [Aufranc] 869—C

RESIDENTS AND RESIDENCIES—Continued
  Frank B. Cross prize, 249
  licensure requirements in hospitals, *436; *438
  new residency program, N. Y., 537
  practical instruction for interns, D.C., 1638
  psychiatric and neurological residencies, 258
  residencies available at VA hospitals, (Kan.) 179; (Tex.) 1062
RESINS
  cation exchange, effect on hypertension, congestive heart failure and edema, [deSoldati] 1279—ab
RESORTS: See Tourists
RESPIRATION
  Artificial. See also Respirator; Resuscitation
  artificial, assay of 4 resuscitation procedures, [Swann] 479—ab
  artificial, experiments of Dr. Koritz on himself; Walter Reed Society honors him, 944
  artificial, medical students replace iron lung in poliomyelitis outbreak, Denmark, 624
  artificial, treatment of impaired respiration in bulbar poliomyelitis, [Frank] 757—C
  Disorders: See also Asphyxia; Dyspnea
  disorders, in *postmeasles encephalitis*, [Weinstein] 1560—ab
  disorders, tracheal obstruction from benign lymphoid hyperplasia, [Olson] 1561—ab
  expiration function of abdominal muscles, *[Campbell] 1670*—ab
  hyperventilation in diabetes mellitus, [Musser & others] *1113
  ventilation, in congenital absence of main branch of pulmonary artery, [Steinberg & *others*] *1216
RESPIRATORS: See also Respiration, artificial
  mechanical, importance of negative pressure phase in, [Maloney & others] *212
  New York city plan for care of poliomyelitis patients in, [Wallace & Baumgartner] *1506
  Poliomyelitis Respirator Center, courses at, Texas, 1248
  Vital Capacity: See Vital Capacity
RESPIRATORY METABOLISM: See Metabolism, basal
RESPIRATORY SYSTEM: See also Bronchus; Lungs; *Pleura*; *Trachea*
  conditions with thick sputum, trypsin (Tryptar) inhalations in, [Unger & Unger] *1109
  Disorders: See also Bronchiectasis; Pneumonoconiosis
  disorders, atopic dermatitis caused by inhalant *antigens, [Diamond] 1465—ab*
  disorders in welders, [Charr] *1520
  Infection: See Bronchopneumonia; Influenza; Pneumonia; Tuberculosis of Lungs
  insufficiency (acute) in poliomyelitis, [Lassen] *286*—ab
RESPONSIBILITY: See Malpractice
REST: See *also* Sleep
  Bed Rest: See also Convalescence
  bed rest in minimal pulmonary tuberculosis, *[Mitchell] 1463—ab*
  bed rest in tuberculous pleurisy with effusion, [Mitchell] 1464—ab
  why do kidneys function better when patient *is at rest? 1291*
RESTLESS LEG SYNDROME
  relief with quinidine sulfate, (reply) [Lowell] 200
RESUSCITATION: See also Respiration, artifi*cial; Respirators*
  cardiac, course at Western Reserve, 252
  cardiac, especially by massage, drugs, defibrillation, [Leeds] *1409
  cytochrome C in, [Battezzatti] 369—ab
  of asphyxiated newborn infant; use of Jackson infant laryngoscope and bronchoscope, also Kreiselman infant resuscitator, [Beattie & Zwerling] *216; [Greenhill] 961—C
  of newborn, method and machine for, [Mann] *1333; (correction) 1643
  procedures, 4 methods, [Swann] 479—ab
  [illegible] tie & Zwerling] *216
[illegible] SYSTEM
  index (Sandor's) to measure serum lipoproteins, Paris, 1551
RETICULOENDOTHELIOSIS
  in lupus erythematosus disseminatus, Brazil, 1358
RETINA
  crush syndrome affecting, [Weinstein] 1658—ab
  detachment, scleral resection for, [Pischel] 1658—ab
  Foundation Service fellowship, 1641
  Inflammation: See Retinitis
RETINITIS
  pigmentosa, ocular implants for, Paris, 868
  pigmentosa, placental grafts for, Turkey, 1455
RETROLENTAL Fibroplasia: See Lens, Crystalline
[illegible]: See Pneumo-
[illegible] See Prostatectomy
REULING, J. R., speaker of A.M.A. House of Delegates, 720
REVISTA: See Journals
REWARDS: See Prizes
Rh FACTOR: See also Erythroblastosis, Fetal
  blood grouping tests for exclusion of paternity, [Unger] *1006
  in fourth pregnancy, *199*
  induction of labor in Rh-negative mother, 295

RH FACTOR—Continued
  mother nurs[illegible] 1396
  necessity of [illegible] n cross-matching, [illegible] b
  Rh-negative [illegible] man a transfusio[illegible] 07
  stillbirths (6) relation to, 1582
  transfusion reaction after using group O Rh-negative blood, [Tovey] 1380—ab
  tubal ligation in Rh-negative mother, 295; *(reply) [Cone] 1500*
[illegible] See Heart disease [illegible] nflammation; Myocarditis
  course in, U. of Utah, 341
  Institute in October, Ill., 1054
  Primer on Rheumatic Diseases, *329
  recurrences, preventing, 1083
  treatment, cortisone or corticotropin indicated in all cases? 1493
  treatment, HPC and aspirin, [Clark] 1265—ab; (correction) 1724
  treatment, home care of children, Montefiore *Hospital plan, [Young & Rodstein]* *987
RHEUMATISM: See also Arthritis
  Acute Articular: See Rheumatic Fever
  American Rheumatism Ass'n., award to Dr. Swift, *1247*
  Chilean Congress on Rheumatic Diseases, 957
  classification of, *325
  International Congress of Rheumatic Diseases Aug. 24-28, at Geneva, Switzerland, 540
  nonarticular, *526
  palindromic, *530
  Primer on Rheumatic Diseases, 4th ed., *323; *405; *522
  psychogenic, Chile, 957
  psychogenic, *529
  sleep, acroparesthesia, 374
  Società Italiana di Reumatologia prize, 1056
RHEUMATOID ARTHRITIS: See Arthritis, Rheumatoid
RHINITIS
  purulent, erythromycin for, [Herrell & others] *1605
  Vasomotor: See Hay Fever
RHINOPHARYNX: See Nasopharynx
RHINORRHEA
  Cerebrospinal: See Cerebrospinal Fluid
RHUS
  antigen injections, exacerbation of ivy dermatitis by, [Reyer] 1168—ab
  treatment, 2,4-D most effective on poison ivy, 1144—E
RHYTHM
  Society for the Study of Biological Rhythms, *1724*
RIBOFLAVIN
  cocarboxylase effect on urinary excretion of in heart disease, Italy, 1452
RIBS
  painful swelling of costal cartilages, Tietze's syndrome, [Motulsky & Rohn] *504
  stress fractures in successive pregnancies, [Marsh] *26
RICHARDSON Test: See Pregnancy, diagnosis
RICHMOND, VIRGINIA
  medical care for indigent, Council report, 268
RICKETTS Prize: See Prizes
RICKETTSIA: See Q Fever; Rocky Mountain *Spotted* Fever; Typhus
RIGIDITY
  muscular, 20% carbon dioxide inhalation in, [Fay] *1623
RIMIFON: See Isoniazid
RINGER'S SOLUTION
  lactated, fluid and electrolyte balance in burns, [Reiss & others] *1309
RINGWORM: See Dermatophytosis
  of Scalp: See Tinea capitis
RISING, Early Rising after Operation, etc.: See Convalescence
ROAD Accidents: See Automobiles; Bicycles
ROCKEFELLER
  Foundation: See Foundations
  Institute for Medical Research, (Dr. Gasser retires as director) 1154; (elects new officers) 1439
ROCKY MOUNTAIN SPOTTED FEVER
  warning against wood ticks, Ill., 1246
RODENTICIDES
  use and abuse of generic (coined common) names for (Committee report) *818
RODENTS: See Rats
RO-DETH: See Warfarin
ROENTGEN RAYS
  burns from diffraction apparatus simulating infections, [Watrous & others] *513
  cataract, 334—E
  damage, blood picture as indicator of, [Langendorff] *1488—ab*
  departments in hospitals, *156
  diagnosis (erroneous) [illegible] foration by foreign [illegible]
  diagnosis, hazards of [illegible] tion of colon and [illegible]
  diagnosis, high voltage X-rays to discover colonic polyps, [Gianturco] 1566—ab
  diagnosis in regional ileitis, 199
  [illegible] breast cancer, [illegible] 6
  [illegible] Rays, diagnosis; Urography; under specific organs and regions as Brain; Gallbladder; Spinal Canal; Thorax, chest x-rays

ROENTGEN RAYS—Continued
  examination, new techniques, Paris, 1551
  examination, sensitivity to contrast materials, 655
  examination studies during pregnancy; effect on fetus, (reply) [Schwarz] 776
  Irradiation: See Roentgen Therapy
  medical supervision of persons working with, Norway, 1550
  photofluorography to detect unsuspected gastric *neoplasms, [Wigh] 273*—ab
  sensitivity of renal cancer, [Heinrich] 99—ab
  technicians in hospitals, statistics on, *159; *160; 165—E
  technicians, schools for, approved by A.M.A., *161
ROENTGEN THERAPY
  effect on human skin, [Wachsmann] 1488—ab
  irradiation intoxication, [Zuppinger] 100—ab
  of arachnoiditis, 774
  of benign uterine hemorrhages, 564
  of hemangioma, [Montag] 480—ab
  of psoriasis with Bucky rays or grenz rays, 1395
ROENTGENOGRAPHY: See Roentgen Rays diagnosis; Roentgen Rays, examination
ROOMS: See Flooring; Homes
ROSACEA
  role of emotions in, [Frumess] *1419
ROSEOLA
  infantum or "3 day measles," 1395
ROSS (Will) Medal: See Prizes
ROUNDWORMS: See Ascaris; Strongyloidiasis
ROYAL COLLEGE
  of Physicians, London, (report on teaching of social medicine) 261; (report on student health services) 262
  of Surgeons, London, *(addition to) 1258;* (Queen Elizabeth visits) 1453
RUBBER
  bands, etc., dermatoses in office workers, [Morris] *1218
  foam rubber sponge used for intestinal anastomosis, [Berman] 1371—ab
RUBBING ALCOHOL: See Isopropyl Alcohol
RUBELLA
  congenital defects due to; prophylactic use of gamma globulin in pregnancy, [Miralbell-Andreu] 1486—ab
  in pregnancy: effect on fetus, [Kaye] 85—ab
  prevention, convalescent gamma globulin for, [Anderson] 769—ab
RUBEOLA: See Measles
"RULE OF NINES"
  to determine percentage of body surface affected in burns, [Reiss & others] *1309
RUNYON (Damon) Fund: See Foundations
RUPTURE: See Hernia; under *specific organs* and regions as Abdomen; Aortic Valve; Bladder; Spine, intervertebral disk; Uterus
RURAL COMMUNITIES: See also *Farm;* Farmers
  A.M.A. Council on Rural Health: *See American* Medical Association
  County Health Department: See Health
  health bulletin: "Parade of Progress," 459
  National Conference on Rural Health, digest of proceedings available from A.M.A., 1538
RUSH (Benjamin) Award: See Prizes
RUSK, H., address at New York *meeting,* 724
RUST
  should tetanus antitoxin be given 5 days after stepping on rusty nail? 200
RUTGERS 612: See Ethohexadiol

S

SACHS, ERNEST, errors in his HISTORY OF NEUROLOGICAL SURGERY, [Wartenberg] 184—C
SACROCOCCYGEAL Fistula: See Pilonidal Sinus
SACROILIAC JOINT
  fracture (obstetric), [Urist] *127
  slipped, 105
SACRUM: See Lumbosacral Junction
SAFETY
  National Safety Council: See National Safety Council
SAILORS: See Navy, United States
ST. LOUIS Clinical Meeting: *See American* Medical Association
SAINT VINCENT Prize: See Prizes
SALARIES: See Income; Wages
SALESMEN, Fraudulent: See Imposters
SALICYLATES: See Acid, acetylsalicylic; *Acid, p*-aminosalicylic
SALIVA
  *p*H of, and tooth decay, 483
SALIVARY GLANDS
  tumors; 4 groups, [Byars & Ackerman] 354—C
  virus, inclusion pneumonitis in adult due to, [Wyatt] 1461—ab
SALMONELLA
  Center of Mexico, 1359
  Montevideo infection from powdered egg yolk; streptomycin treatment, [Southard & others] *1432
SALPINGECTOMY: See Oviducts
SALT: See also Sodium chloride
  free diet, Nabisco Brand Low Sodium Toast, 45
  metabolism, effects of licorice on, [Card] 1383—ab

SALYRGAN: See Mersalyl
SAN FRANCISCO Meeting (1954): See American Medical Association
SANDOR'S Index: See Reticuloendothelial System
SANDPAPER
  abrasion for tattoos, [Strakosch] 187—ab
SANITATION: See also Health; Toilet Facilities
  dining car, 956
  eating and cooking utensils, [Ridenour] 359—ab
  in trailer courts, 258
  Industrial: See Industrial Hygiene
SARCOIDOSIS
  biopsy techniques in intrathoracic lesions, [Storey] 1268—ab
  Boeck's sarcoid and the tubercle bacillus, [Refvem] 93—ab
  periarteritis nodosa and, [Jackson] 559—ab
  treatment, cortisone; eosinophiles in, 1394
  treatment, hydrocortisone and cortisone injected into skin lesions, [Sullivan & others] *308
  treatment, trypsin injection, [Innerfield & others] *597
  tuberculosis of lung with, atypical tuberculin reactions in, [Arany] *491
SARCOMA: See also Fibrosarcoma; Hemangiosarcoma; Lymphosarcoma; Osteosarcoma
  Ewing's [Wang] 1375—ab
  Ewing's, of bones, treatment, [McCarroll] *299
  [illegible] b
  [illegible] Carroll] *297
  [illegible] Hexachloride, gamma
SCABIES
  Committee report on names for scabicides, *820
SCAIFE Fellowship: See Fellowships
SCALDS: See Burns
SCALP
  hair at operations, surgeons who fail to cover, [Prioleau] 477—C
  injuries to, [Lipscomb] *590
  itchy, 1292
  Ringworm of: See Tinea capitis
  shaving, in newborn; custom related to alopecia leprotica, [Cleve & Pruitt] *573; [Reiss] 1652—C
SCANDINAVIAN: See also Norwegian; Swedish
  Inter-Scandinavian public health problems, Norway, 549
  Neurological Congress, 73
SCAPULA
  Surgical Approaches to Scapulohumeral Joint (film review), 477
SCAR: See Cicatrix
SCARLET FEVER
  incidence lower; low mortality due to antibiotic therapy, 126—ab
  treatment in the home, [Breese] *10
  treatment, orally with new salt of penicillin, *[Corlell]* 1662—ab
SCHAUMANN-Besnier-Boeck Disease: See Sarcoidosis
SCHEEL, AXEL, death, Norway, 1361
SCHERING Award: See Prizes
  Fellowship: See Fellowships
SCHICK TEST: See Diphtheria
SCHILDER-FOIX DISEASE
  diffuse and multiple sclerosis differentiated, [de Morsier] 1475—ab
SCHISTOSOMIASIS
  control, P. I., 540
  intestinal, in Sao Paulo, Brazil, 1358
SCHIZOPHRENIA: See Dementia Precox
SCHOENBACH Lecture: See Lectures
SCHÖNLEIN-Henoch Purpura: See Purpura
SCHOLARSHIPS: See also Fellowships
  Dewees Public Health, Pa., 1348
  for physical or occupational therapists established by Orthopedic Hospital, Calif., 1054
  Kellogg Foundation awards, Chile, 547
  National Foundation for Infantile Paralysis, to medical social workers, 1155
  surgical, established by American College of Surgeons, 539
  Taft (Robert A.) Memorial Cancer Research, 1719
SCHOOL CHILDREN: [illegible]
SCHOOLS: [illegible] [illegible]dents; University: [illegible] at end of letter M
  Children in: See Children, school
  for Medical Record Librarians: See Medical Record Librarians
  for Technologists: See Technologists
  Grauhaug, treatment of speech defects, Norway, 1064
  of Nursing: See Nurses and Nursing
  of Occupational Therapy: See Occupational Therapy
  of Physical Therapy: See Physical Therapy
  open-air, castigated, London, 72
  Premedical Work: See Education, Medical, premedical
  School for the Blind teaches by mail, 1437
  vision surveys, 1738
SCHOOLS, MEDICAL: See also Education, Medical; Graduates; Students, Medical; University; under names of specific schools
  academic year (length of) and total time spent in required by state boards, *436; *437
  Air Force: See Aviation, U. S. Air Force
  approval of, *436

SCHOOLS, MEDICAL—Continued
  approved, graduates of and others registered, 1922-1952, *432; *434
  Canadian, graduates examined for licensure in U. S., 1952, *421
  candidates examined by state boards according to, *416; *420
  crisis discussed by business leaders, Pa., 746
  Curriculum: See Education, Medical curriculum
  Enstein College of Medicine, 172
  foreign, foreign-trained physicians examined according to, 1952, *442
  foreign, funds for by Rockefeller Foundation, 748
  foreign, list of, *440; 456—E
  foreign, Peiping Union Medical College approved for A.M.A. list of, 186
  in Korea, [Rusk] 476—C; 725; 956; (books for) 950; 1062
  internships required, *436; *438
  licensure failures according to, *422; *423
  National Board diplomates according to individual schools, *454
  osteopathic (six), list of, course and quality of instruction, 736
  overcrowding in, Argentina, 752
  Premedical W[illegible] [illegible]edical
  Teaching in: [illegible]
  tuberculosis [illegible] of students, 922—[illegible]
  unapproved, graduates failed medical boards, *423
  unapproved, graduates of, registered, 1948-1952, *433; *435
SCHROETER Whirlpool Carriage, Model B, 1715
SCIATICA
  back pain and, Chile, 957
  etiology: disk lesions, Italy, 1452
SCIENCE: See Research
  Basic Sciences: See Basic Sciences
  [illegible] See Foundations
  [illegible] merican Medical
  [illegible]
  Tests: See "Evidence" under Medicolegal Abstracts at end of letter M
SCINTILLATION COUNTER
  in diagnosis of thyroid diseases, [Barrett & others] *1414
  to study cerebrovascular permeability, [Ashkenazy] 86—ab
SCLERA
  resection for detached retina, [Pischel] 1658—ab
SCLERODERMA
  Chile, 957
  Primer on Rheumatic Diseases, *413
  treatment, trypsin injection, [Innerfield & others] *597
SCLEROSIS: See also Arteriosclerosis; Liver [illegible] Otosclerosis
  dif[illegible] multiple sclerosis, [illegible]
  Sp[illegible]
SCL[illegible]
  di[illegible] nnesota, 1720
  differentiated from diffuse sclerosis, [de Morsier] 1475—ab
  Multiple Sclerosis Society grant by Kresge Foundation, 1723
  treatment, insulin subshocks, [Rodriguez-Arias] 1486—ab
SCOLIOSIS: See Spine curvature
SCOPOLAMINE *(Hyoscine)*: See also Medicolegal Abstracts at end of letter M
  treatment plus morphine, fatality from using alcohol or barbital with, [Møller] 288—ab; 352
SCORPIONS
  in the Carolinas and Arizona, 106
SCRATCHES
  Cat Scratch Disease: See Cats
SCREENING: See Diagnosis
SCREWS (steel)
  in bones, structural changes around, [Collins] 642—ab
SCROTUM
  calcification in, caused by meconium peritonitis, [Olnick & Hatcher] *582
  no testes in, 375; (reply) [Herman] 1678
SCRUBBING: See Washing
SCURVY
  bicentenary of Lind's classic "Treatise on Scurvy," London, 1258; 1331—ab
  effect of vitamin C deficiency on healed wounds (scar tissue), 334—E
SEA: See Navy; Submarines
SEARLE (G. D.) COMPANY, A.M.A. expresses appreciation to, 855
SEASONS: See also Climate; Weather
  variation of acute myocardial infarction, [Heyer] 1656—ab
SEATWORMS: See Oxyuriasis
SEBACEOUS CYSTS
  correlate clinical and pathological diagnosis in 300 cases, [Gross] *813
SEBRELL, WILLIAM HENRY Jr., *Joseph Goldberger* Award of 1952, *42; 49—E
SECRETIN
  in patients with gastrointestinal diseases, [Labò] 769—ab
  test of pancreas function, [Dreiling] 1472—ab
SECTION of . . .: See American Medical Association, Section

SECURITY: See Social Security
SEDATIVES: See also Hypnotics
  danger of combining morphine with; fatalities, [Møller] 288—ab; 352
  preanesthetic sedation of children, [Eckenhoff] 1556—ab
SEIZURES: See Convulsions; Epilepsy
SELF-MEDICATION
  brass pot (chimboo) to cure stomachache in India, (pictures) [Oliver] 1456—C
SELYE Adaptation Syndrome: See Adaptation
SEMEN: See also Spermatozoa
  improved test of spermicidal activity without dilution or mixing, (Council article) [Gamble] *1037
  nocturnal erections, (reply) [Konrad] 986
SEMINAL VESICLES
  infection: treatment of hemospermia, (reply) [Russell] 776
SENILITY: See Old Age
SENSATION: See Acroparesthesia; Restless Leg Syndrome
  Loss of: See Anesthesia
SENSES: See Hearing; Smell; Taste; Vision
SENSITIVITY; Sensitization: See Allergy
SEPTICEMIA: See also Bacteremia
  staphylococcic, erythromycin for, [Herrell & others] *1601
SERODIAGNOSIS: See Syphilis; Typhus
SERUM
  Blood: See Plasma; and subheads under Blood
  Hepatitis: See Liver Inflammation
  horse, skin tests in atopic disease, [Engelsher] 355—C
  Neuritis: See Allergy
  Placental Blood Serum: See Placenta
  Plasma: See Plasma
  Reaction: See Allergy
SERUTAN
  esophaggeal obstruction due to, [Melamed & Marck] *318
SERVICEMEN: See also Armed Forces; Army; U. S.; Korean War; Medical Preparedness; Navy, U. S.; Veterans
  GI Insurance: See Insurance
  medical care for dependents of, report to Los Angeles County Society by A.M.A. Council, 758
SEWAGE: See Feces; Urine
SEX: See also Fertility; Sterility; Sterilization, Sexual
  change in, from man to woman: transvestism, [Hamburger & others] *391; [Wiedeman] 1167—C; [Ostow] 1552—C
  determination [illegible] in last trimester [illegible]
  [illegible] n vaginal smear, [illegible]
  Function, Decline of: See Menopause
  Function, Development of: See Adolescence
  Glands: See Gonads
  Hormones: See also Androgens; Estrogens
  hormones (intensive) therapy in advanced breast cancer, (Council report) [Kennedy [illegible]
  [illegible] reatment of meno-[illegible]
  [illegible] See Genitals
  Preface to a Life (film review), 272
SEXUAL STERILIZATION: See Sterilization, Sexual
SHAKING Palsy: See Paralysis agitans
SHAMPOO
  how frequent; best type for hair, 1496
SHAVING
  scalp of newborn infants, custom of, relation to transmission of leprosy, [Cleve & Pruitt] *573; [Reiss] 1652—C
  unnecessary routine orders before operation, [Harbison] *397
SHELLFISH: See Mussels
SHERMAN Anti-trust Act: See Medicolegal Abstracts at end of letter M
SHIELD: See also Mask
  syringe, used in injecting radioactive gold, [Getzoff & others] *1431
SHINGLES: See Herpes zoster
SHIPS: See also Submarines
  work of ship surgeon, 1420—ab
SHOCK
  Allergic: See Allergy
  bacteremic, produced by gram-negative bacilli, [Braude] 1274—ab
  Clinical Shock PMF 5108 (film review) 186
  combating in acute pancreatitis, *[Berk]* *3
  Electric, Therapeutic: See Electric shock
  etiology: acute adrenal cortical failure, [Taylor] 1266—ab
  hemorrhagic, intra-arterial and intravenous blood infusion in, [Case & others] *208
  negative pressure phase in mechanical respirators, [Maloney & others] *212
  surgical, intra-aortic and intracardiac transfusions in, [Stephenson & Hinton] *500
  Therapeutic: See Electric shock treatment; Insulin shock
  treatment, arterenol, [Miller & others] *1198; (correction) 1543
  treatment in acute myocardium infarction, [Gootnick] 1171—*ab*
  treatment, intra-aortic transfusion, [Haxton] 1278—ab
SHOES: See also Hosiery
  children's, [Matlin] 1167—C

- SHORT WAVE: See Diathermy; Radio; Television
- SHOULDER: See also Humerus; Scapula
  - hand syndrome after myocardial infarction, cortisone for, [Russek] 1460—ab
  - hand syndrome, Primer on Rheumatic Diseases, *529
  - lesions, nylon prosthesis in, [Mac Ausland] 188—ab
  - pain, visceral aspects, 1600—ab
  - painful, implant placenta grafts and inject placental extract, [Uranga] 1672—ab
  - painful, medical aspects, Chile, 957
  - painful, problem of, [Henle] 764—ab
  - paralysis, Italy, 71
  - periarthritis of, and coronary disease, [Robinson] 767—ab
  - periarthritis of, Italy, 71
- SHOWER: See under Baths
- SHROPSHIRE, RALPH F., danger of fish lens protein injection for cataract, [Breinin] *698; (National Research Council report) *707; 710—E
- SHUNT Operation: See Portal Vein
- SICK: See Disease, chronic; Patients
  - Transportation of: See Stretcher
- SICKLEMIA: See Anemia, sickle cell
- SICKNESS: See Disease; Health; Hospitals; Therapeutics
  - Absenteeism because of: See Industrial Health, workers
  - Convalescence from: See Convalescence
  - Insurance: See Insurance, sickness
  - Prevention: See Preventive Medicine
  - Rate of: See Vital Statistics, morbidity
  - Serum: See Allergy
- SIERRA (Lucas) Foundation: See Foundations
- SIGHT: See Vision
- SIGMOID: See under Colon
- SILICONE
  - spray not recommended to prevent nasal irritation in baker, 1677
- SILICOSIS: See Pneumonoconiosis
- SIMMONDS' DISEASE: See Pituitary
- SIMULIUM Flies: See Flies
- SINUS
  - between fingers containing hair in barbers, [Waris] 1466—ab
  - Pilonidal: See Pilonidal Sinus
- SINUSITIS, NASAL
  - acute and chronic, trypsin injection for, [Innerfield & *others*] *597
  - allergic, followed by formation of nasal polyps, 1676
  - bacteriology, Brazil, 70
  - chronic, Kartagener's syndrome, 533—E
  - treatment of streptococcic infections in the home, [Breeze] *10
- SITOSTEROL
  - to reduce blood cholesterol, [Pollak] 1663—ab
- SITZ Bath: See Baths
- SKIN: See also Dermatology; Tissues
  - absorption of isopropyl alcohol in tepid sponging of small boy, [Garrison] *317
  - Allergy: See Dermatitis venenata; Eczema
  - Burn: See Burns
  - cancer (multiple arsenical), [Sommers] 1170—ab
  - cancer (multiple primary), [Phillips] 1569—ab
  - Creams or Cosmetics: See Cosmetics
  - Dermatomyositis: See Dermatomyositis
  - Disease: See also Dermatitis; Eczema; Urticaria
  - disease among office workers, [Morris] *1218
  - disease, corticotropin for, [Reymann] 980—ab
  - disease, cortisone and corticotropin in, [O'Leary & Erickson] *1695
  - disease from "improved" flour, [Sheldon] 1179—ab
  - disease (generalized) caused by dental infection, [Hanfling] 1563—ab
  - disease, hydrocortisone free alcohol ointment, [Sulzberger & others] 1456—C
  - Disease (Industrial): See Industrial Dermatoses
  - disease, neomycin and bacitracin in, Denmark, 352
  - disease, role of emotions in, [Frumess] *1417
  - disease, vitamin A and D for, Turkey, 182
  - Eruptions: See Eruptions
  - Fish Skin: See Ichthyosis
  - graft for severe burn, identical twin as donor of, [Blandford] 279—ab
  - granuloma after swimming pool abrasion, [Rees & Bennett] *1606
  - Hemorrhage: See Purpura
  - hydrogen ion concentration and perspiration stains on metal, 295
  - infection, neomycin and bactracin locally for, [Gade] 981—ab
  - Inflammation: See Dermatitis
  - Itching: See Eczema; Pruritus; Scabies
  - lesions of acrodermatitis enteropathica, treated with diodoquin, [Dillaha & others] *509
  - lesions of mucocutaneous junctions in pyridoxine deficiency, [Ramalingaswami] 361—ab
  - lesions of sarcoidosis, inject hydrocortisone and cortisone into, [Sullivan & others] *308
  - melanin hyperpigmentation, benoquin for, [Lerner & Fitzpatrick] *577
  - miliaria, [Shelley] *670
  - pigmentation in intermarriage, 1393
  - Pigmentation, Loss of: See Vitiligo
- SKIN—Continued
  - Rash: See *Eruptions*
  - Reaction: See also Allergy; Dermatitis venenata; Skin test; Urticaria
  - reaction to ascarides, Turkey, 265
  - reaction to procaine amide hydrochloride, [*Koffler*] *28
  - roentgen and radium gamma irradiation effect on, in man, [Wachsmann] 1488—ab
  - Scleroderma: See Scleroderma
  - sensitivity in nickel eczema, [Morgan] 1178—ab
  - stria cutis distensa, abdominal wall rupture through, during cortisone or corticotropin *therapy*, [*Lawrence & others*] *1526
  - sutures, easy removal of, [Weinstein & Roberts] *1231
  - tattooing of nevus flammeus for permanent camouflage, [Conway] *666
  - Test: See also Skin reaction; Tuberculin
  - test (allergic), multiple positive reactions to, 1498
  - test in atopic disease, [Engelsher] 355—C
  - test (Moloney), booster tetanus injection advisable in allergic child? 1084
  - test (mumps) during mumps epidemic, [Cabasso & Hoagland] *1527
  - Transplantation: See Skin graft
  - tumor and other lesions mistaken for sebaceous cyst, [Gross] *813
  - tumors, primary fibrosarcoma, [Mopper] *570
  - Ulcers: See Ulcers
  - virus disease of: milker's nodules, 50—E; [Green] 757—C; [Lane] 1067—C; [Ronchese] 1732—C
- SKINNER Memorial Lecture: See Lectures
- SKULL: See Cranium
- SLEEP
  - disorder: insomnia, use of hypnotics in aging and senile patients, [May & Ebaugh] *801
  - Induced: See Anesthesia; Narcosis
  - muscle relaxation of hand and fingers on steering wheel in driver, 374
  - tetany or sleep rheumatism, acroparesthesia, 374
- SLEEPING DISEASE: See Trypanosomiasis
- SMALLPOX
  - campaign and vaccination, Turkey, 265
  - immunity to, 130—ab
  - outbreak, London, 353
  - vaccination, contraindicated in child with *eczema? 1392*
  - vaccination, fatal generalized vaccinia after, [Keidan] 1570—ab
  - vaccination of infant, 1499
- SMELL: See also Odor
  - sense of, loss of as toxic effect of methimazole (tapazole), [Hallman & Hurst] *322
- SMITH (Theobald) Award: See Prizes
- SMOKERS; SMOKING: See Tobacco
- SNAILS
  - disease-bearing, Japanese honor Col. Hunter for eradicating, 1152
- SNAKES
  - bites, cortisone and corticotropin for, [Hoback & Green] *236; (correction: no such creature as a "copperhead moccasin") [Joseph] 1067—C
  - bites poisoning, histological lesions in, Brazil, 259
- SNAPPING
  - in joints, 1084
- SNOW (William Freeman) Prize: See Prizes
- SOAP
  - care of hair: how often should it be shampooed? 1496
  - liquid, dermatoses among office workers, [Morris] *1218
  - powder-wood flour mixture to remove radioactive soil from hands, [Gregory] 365—ab
- SOCIAL
  - aspect of food rationing, Israel, 1256
- SOCIAL HYGIENE
  - awards, 1155
- SOCIAL SECURITY: See also Medicolegal Abstracts at end of letter M
  - federal bills on, A.M.A. attitude on, 1049; 1241
  - system and program, A.M.A. resolution on, 835; 836
- SOCIAL WORKER: See Medical Social Work
- SOCIALIZED Medicine: See Insurance, sickness
- SOCIETIES, MEDICAL: See also American Medical Association; under names of specific societies; list of Societies at end of letter S
  - County, Care for Indigent: See Medically Indigent
  - county, mediation committee of Alameda County Medical Society, [Allen] *658
  - county, New York's reply to Life's editorial, 1142—E
  - county, Philadelphia, gavel of mastodon ivory presented to, 1055
  - county, third biannual survey of activities completed by A.M.A. Council, 459
  - grievance or mediation committee, [McCormick] *486 [Allen] *658; (President's page) 824; (list of titles of such committee to hear complaints from public) 833; (Reference Committee report) 834
  - growth of organized medicine, [McCormick] *486
  - local and national organizations interested in mental health, 48—E
- SOCIETIES, MEDICAL—Continued
  - placement service, (Council article) *552
  - Plans for Medical Service: See Medical Service Plans
  - Role in Case for Indigent: See Medically Indigent
  - Society [illegible] 368
  - state, [illegible] [Minnesota) [illegible]
  - state, Indiana resolution on care of crippled children, Watch it, Life, 1142—E
  - state, mental health activities of, A.M.A. Committee report, 1053
  - Woman's Auxiliary: See Woman's Auxiliary
  - World Medical Association: See World Medical Association
- SODA
  - Baking: See Sodium bicarbonate
- SODIUM
  - acetrizoate (Urokon), injected into aorta for X-ray hepatography, [Rigler] 1376—ab
  - *Amytal*: See Medicolegal Abstracts at end of letter M
  - ascorbate, severe acute hemolytic anemia after ingesting, [Lust] 1281—ab
  - benzoate, correct dosage for premature infant? 1585
  - bicarbonate, fluid and electrolyte balance in burns, [Reiss & others] *1309
  - *Chloride*: *See also Salt*
  - chloride, fluid and electrolyte balance in *burns*, [*Reiss & others*] *1309
  - chloride, heparin and angina pectoris, [Engelberg] 474—C; (reply to Dr. Engelberg), [Binder] 1066—C
  - chloride-sodium lactate solution, fluid and electrolyte disturbances in prostatism, [Lapides] *1305
  - chloride with glucose and citrated blood, give in same tube? 296
  - hydroxide (lye), obliteration of esophagus [illegible] endoscopy for, [Bar- [illegible]
  - [illegible] synkayvite), N.N.R., 6
  - [illegible] curophylline [illegible] burned area, methemoglobinemia from, [Rozenfeld] *706
  - *Pentobarbital*: *See Pentobarbital*
  - Pentothal: See Thiopental Sodium; Medicolegal Abstracts at end of letter M
  - phosphate to buffer gastric juice for detecting tubercle bacilli, [Roth] 1079—ab
  - urate deposits in spinal canal cause paraplegia in gout, [Koskoff & others] *37
- SOIL
  - Eating Soil (Pica): See Appetite
  - Removal of: See Detergents; Soap
- SOLDIERS: See also Armed Forces; Army; Korean War; Medical Preparedness; Servicemen; *Veterans*
  - American, in Korea, disease: greatest enemy of, 1448
  - U. S., killed in action in Korea, coronary disease among, [Enos & others] *1090
- SOLUTION: See Fluids; under specific names as Ringer's Solution; Potassium arsenite; Sodium chloride
  - Ophthalmic: See Eyes
- SOMATIC
  - Complaints: See Psychosomatic Medicine
- SOMATOTROPIN (somatotropic hormone)
  - name accepted by Council, 709
- SORE Throat: See Throat
- SOUND: See Heart sounds; Noise
  - Waves: See Ultrasonics
- SOUTH AMERICAN: See also Pan American
  - Congress of American College of Surgeons, first regional meeting, Brazil, 70
- SOUTHERN CROSS: See Prizes
- SPAIN
  - tourists' enteritis: value of olive oil in the diet, (reply) [Martinez Diaz] 200
- SPASM: See also Arteries; Tetany; Urethra
  - Diaphragmatic: See Pleurodynia, Epidemic
  - paroxysmal hemifacial, [Lathrop] *24
- SPASMOPHILIA: See Tetany
- SPASTIC Paralysis: See Paralysis; Paraplegia
- SPEAKING: See also Speech
  - trick of effective public speaking in acoustically difficult auditorium, [Schaefer] 354—C
- SPECIALISTS: See under specific types
  - Certification: See American Board
- SPECIALTIES: See also under types of specialties as Dermatology; Gynecology; Obstetrics; Ophthalmology; Pathology
  - A.M.A. Committee on General Practice Prior to Specialization, report, 834
  - approval of only one certifying board in each specialty, 728
  - Certification in: See also American Board
  - certification, prerequisite, 728
  - graduate continuation courses according to, July 1953-Jan. 1954, 612—E; *629
  - medical, preference test, 948
- SPECIMENS: See also Blood specimens
  - glass vs. waxed cardboard containers for, 107
- SPECTACLES: See Glasses
- SPEECH: See also Speaking; Voice
  - defectives aided by James Sonnett Greene Club, N. Y., 945
  - defects ever have an allergic basis? 1678
  - defects treatment at Granhaug School, 1064
  - defects, treat stuttering with carbon dioxide, 106

SPEECH—Continued
  esophageal speech institute, Ohio, 1440
  International Association of Logopedics and Phoniatrics, meeting, 1156
SPERMATIC CORD
  torsion, [Deming & Clarke] *521
SPERMATOZOA: See also Semen
  azoospermia, 1184
  cervix hostility to, crystallization test of, [da Paz] 1372—ab
  improved test of spermicidal activity of contraceptives without dilution or mixing, (Council article) [Gamble] *1037
  infection of seminal vesicle: treatment of hemospermia, 151:533, Feb. 7, 1953; (reply) [Russell] 152:776, June 20, 1953
  postcoital test of evaluating spermicidal activity of contraceptive jelly, (Council article) [Cohen & Kaye] *1042
SPHINCTER MUSCLES
  exercising, for stress incontinence, [Wharton] 1561—ab
  internal anal, surgical importance, [Eisenhammer] 1387—ab
  of Oddi, reciprocal relations to motility of gallbladder, [Adlercreutz] 1275—ab
  surgery, transduodenal sphincterotomy for relapsing pancreatitis, [Major] 92—ab
SPHYGMOMANOMETERS
  auscultatory gap, 1586
  blood pressure reading: sound first appears as mercury goes up at considerably lower level than it disappears, 483
SPIDERS
  bites from, arachnidism treated with cortisone, [Maretić] *609; (not recommended) [Taubenhaus] 1652—C
  bites from, magnesium sulfate injections for, 373
SPINA BIFIDA
  occulta, changes observed at lumbosacral junction, [Splithoff] *1610
SPINAL ANESTHESIA: See Anesthesia, spinal
SPINAL CANAL
  roentgen study, myelographic evidence of protruded intervertebral disk, [Berg] 281—ab
  sodium urate deposits in, cause of paraplegia in gout, [Koskoff & others] *37
SPINAL CORD
  degeneration (nonanemic subacute combined) cytology of bone marrow in, [Bastrup-Madsen] 288—ab
  Disease: See also Encephalomyelitis; Poliomyelitis
  inflammation (myelitis) after "efocaine", [Shapiro & Norman] *608
  injuries, bodily state in, [Chor] 1471—ab
  injuries, soft tissue calcifications in, [Liberson] *1010
  lumbosacral syringomyelia: familial ulcerative disease of extremities, Belgium, 350
  radiculitis, from whiplash injuries of neck, [Gay & Abbott] *1698
  Sclerosis: See Sclerosis, Multiple
  tumor, pain in arm associated with bowel movements, 1396
  virus (unusual) from poliomyelitic spinal cord, [Steigman & others] 1066—C
SPINAL FLUID: See Cerebrospinal Fluid
SPINAL PUNCTURE
  lumbar, injury to spine during, 1033—ab
SPINE: See also Ribs; Sacroiliac Joint
  actinomycosis, 401—ab
  arthritis, rheumatoid spondylitis, Marie-Strümpell disease, 1495
  blastomycosis, 36—ab
  cervical, traction for postural vertigo, [Davis] 1466—ab
  changes observed at lumbosacral junction, [Splithoff] *1610
  curvature, severe kyphoscoliosis, esophageal ulcer in, [Haubrich] 1480—ab
  fracture (cervical), paresthesia after, 774
  fracture, severe perforating wound from lead pipe, [Black & McClintock] *519
  injury to, during lumbar puncture, 1033—ab
  intervertebral disk, diagnostic lumbar disk puncture, [Walk] 357—ab
  intervertebral disk lesion, sciatica from, Italy, 1452
  intervertebral disk, pain in arm associated with bowel movements, 1396
  intervertebral disk (protruded), myelographic evidence, [Berg] 281—ab
  intervertebral disk (ruptured lumbar), spinal fusion for, [Cloward] 1272—ab
  osteitis (benign, acute) in children, [Bremner] 1478—ab
  osteitis condensans, [Gillespie] 281—ab
  roentgen study in obstetric fracture-dislocation of pelvis, injury to lumbosacral trunk and first sacral nerve, [Urist] *127
  roentgen study of cervical spine in whiplash injuries of neck, [Gay & Abbott] *1698
  surgical attack on lesions of vertebral bodies, [Johnson] 276—ab
  tuberculous spondylitis, Primer on Rheumatic Diseases, *327
SPIROCHETOSIS: See Relapsing Fever; Vincent's Infection
SPLANCHNICECTOMY: See Nerves
SPLEEN
  biopsy (needle) in diagnosis of hemangiosarcoma, [Wachstein] *237
  diseases, Chile, 865
SPLEEN—Continued
  Excision: See Splenectomy
  hypersplenism, splenic hemolytic anemia, [Aas] 281—ab
  myeloid metaplasia with terminal leukemia, [Long & others] *1619
  traumatic autoplastic implants of splenic tissue (splenosis) [Berry & Erdman] *1227
  tumors, primary hemangiosarcoma diagnosed by needle biopsy, [Wachstein] *237
SPLENECTOMY
  traumatic autoplastic implants of splenic tissue, [Berry & Erdman] *1227
SPLENOSIS: See under Spleen
SPONDYLARTHRITIS: See Spine arthritis
SPONDYLITIS: See Spine
SPONGE
  rubber foam, used in intestinal anastomosis, [Berman] 1371—ab
SPONGING
  tepid, of small boy, acute poisoning from using isopropyl alcohol, [Garrison] *317
SPOROTRICHOSIS
  studied in Mexico, 1360
  treatment, candicidin, [Kligman] 1565—ab
SPORTS: See Athletics
SPOTTED FEVER: See Rocky Mountain Spotted Fever
SPRAY: See also Silicone
  nebulized, containing camphor, menthol, and liquid petrolatum, hazard of, 1290
SPREADING FACTOR: See Hyaluronidase
SPUTUM
  containers, glass vs. waxed cardboard, 107
  in bronchiogenic cancer, value of repeated cytological examination, [Hansen] 288—ab
  thick, respiratory diseases with, treated by inhaling trypsin, [Unger & Unger] *1109
SQUALENE
  hydrocarbon, biosynthesis of cholesterol, 1435—E
SQUIBB Award: See Prizes
STAB Wound: See Wounds
STAFF Meetings: See Hospitals
STAINLESS Steel: See Steel
STAINS AND STAINING
  staining smear to diagnose Vincent's infection, 656
  Sudan III for staining lipid bodies in urinary sediment, [Parrish & Alpert] *1713
STAMPS: See Postage Stamps
STANDARD Nomenclature of Diseases and Operations: See Terminology
STANOLONE (Neodrol)
  name accepted by Council, 709
STAPHYLOCOCCUS
  aureus infections, erythromycin for, [Herrell & others] *1601
  endocarditis, treated with neomycin, [Reed & Wellman] *702
  enteritis, erythromycin to counteract, resulting from antibiotics, [Dearing] 1073—ab
  infection, antibiotics for, [Spink] *589
  pathogenic, antibiotic resistance, [Finland] 760—ab
STARVATION
  treatment (Allen's) of diabetes mellitus, 295
STATE
  Board: See State Board *following*
  Health Department: See Health
  Legislation: See Laws and Legislation
  medical civil defense preparedness according to states, A.M.A. Council report, 872
  Society: See Societies, Medical
  states having basic science laws and year of enactment, *449; 456—E
STATE BOARD: See also Licensure
  [Allen] *660
  addresses of corresponding officers of, *449
  candidates examined by, *415; *416; *420
  endorsing certificates of National Board, 1953, *452; 456—E
  internships required by, *436; *438
  National Board of Medical Examiners examinations with, results, *421; *422
  Number, May 30, *415; 456—E
  professional educational requirements by, *436; *437
  reciprocity and endorsement policies of medical licensing boards, *424; *425; *426
STATESMANSHIP
  of physician, plea for, [Allen] *661
STATISTICS: See Licensure; Vital Statistics
STEEL
  stainless steel screws and nails in bones, [Collins] 652—ab
STEERING Wheel: See Automobiles
STELLATE Ganglion: See Ganglion
STENGEL (Alfred) Award: See Prizes
STERILITY, BACTERIAL: See Sterilization, Bacterial
STERILITY, SEXUAL
  etiology: endometriosis, 1395
  pregnancy after years of: relation to iodine treatment, 1738
  treatment guided by fern-like crystallization of cervical mucus, [da Paz] 1372—ab
  World Congress on (first), N. Y., 341
STERILIZATION, BACTERIAL
  ionizing radiation of pharmaceuticals, [Tarpley] 1373—ab
  of razors, to prevent homologous serum hepatitis, (reply) [Murray] 656
  of syringes and needles in DTP immunization, [Sauer] *1315
STERILIZATION, BACTERIAL—Continued
  pressure system, (Council article) [Theodore & Feinstein] *1631
  ultraviolet rays sterilization in barber shops, 775
STERILIZATION, SEXUAL: See also Castration
  congenital mental deficiency and sterilization of parents, 655
  indicated in repair of cystocele and rectocele? 1582
  tubal ligation in Rh-negative mother, 295; (reply) [Cone] 1500
STEROIDS: See also under names of specific steroids
  hormones, international conference on methods of measuring, 948
  hormones plus aminopterin for acute leukemia, [Magnin] 364—ab
STEROSAN: See Chlorquinaldol
STETHOSCOPE: See Auscultation
STILBAMIDINE
  isethionate, name accepted by Council, 709
  treatment of blastomycosis, [Pariser & others] *129; (dangers from not using fresh solutions) [Miller] 184—C
STILBESTROL: See Diethylstilbestrol
STILL, A. T., founder of osteopathy, 735
STILLBIRTH
  cause of 6 stillbirths in same mother, 1582
  intrauterine fetal death: marriage of cousins, 1497
STILLIANS Lectureship: See Lectures
STIMULATION: See also Stimulator
  electrical termination of hypoglycemic coma, [Montagu] 284—ab
STIMULATOR
  Mead Home Treatment, Model S-1, 47
  muscle, Multitone, Model 3, 1433
  Teca Low Volt and Pulse Generator, Model CD4P, 47
STOCKINGS: See Hosiery
STOKES, J., Jr., viral hepatitis, 612—E
STOMACH: See also Gastro—
  cancer, (correction), 1058
  cancer involving esophagus, [Humphreys] 1474—ab
  cancer of upper pole, [Delannoy] 285—ab
  cancer relation to ulcer, [Soave] 561—ab
  cardiospasm, achalasia, 1706—ab
  cysts of mediastinum, [Matheson] 94—ab
  Disease: See Gastroenteritis
  Disorder: See Indigestion
  diverticula, nervous indigestion, 1083
  Excision (Gastrectomy): See Stomach surgery
  Hemorrhage: See also Peptic Ulcer
  hemorrhage, Mallory-Weiss syndrome, 1292
  lavage, cultivate tubercle bacilli from, Finland, 181
  motility, effects of methantheline on, [Hightower] 649—ab
  postoperative decompression (Levin tube passed into stab wound of stomach and small intestines), [Gilchrist] *232
  secretion and, anticholinergic drugs, [Kirsner] 649—ab
  secretion, buffering gastric juice to detect tubercle bacilli with disodium phosphate, [Roth] 1079—ab
  Surgery: See also Peptic Ulcer, surgical treatment
  surgery, disorders of absorption of vitamin A after gastrectomies, Paris, 264
  surgery, dumping syndrome after gastrectomy, 293
  surgery, late effects of resection, Denmark, 1359
  surgery, mode of life and capacity for work after resection, [Bjerre] 481—ab
  surgery, resection: close partially gastric stump before making anastomosis with jejunum, 484
  tumors (unsuspected), photofluorography to detect, [Wigh] 273—ab
  Ulcer: See Peptic Ulcer
STOMACHACHE
  brass pot (chimboo) to cure, in India, (pictures) [Oliver] 1456—C
STOMATITIS
  caused by cinnamon oil in tooth paste, [Laubach & others] *404
  herpetic, and herpangina, [Schlack] 367—ab
STONES: See Calculi (cross reference)
STOOLS: See Feces
STORAGE of Blood: See Blood Transfusion, blood bank
STRAIN: See Effort; Stress
STRAUSS COMMISSION
  report on extending "Doctor-Draft Law," 165—E; 166
STREET
  Accidents: See Automobiles, accidents
STREPTOCOCCUS
  beta hemolytic, infection; treated at home; methods evaluated, [Breese] *10
  Infection: See Endocarditis; Rheumatic Fever; Scarlet Fever; Throat, sore
  pharyngitis, what concentration of penicillin in blood sufficient to cure, 1583
STREPTOKINASE-STREPTODORNASE (Varidase)
  prevent intestinal adhesions, [Cavallini-Francolini] 1078—ab
  treatment of hemothorax after extrapleural pneumothorax, [Miadonna] 97—ab
  treatment, solution given intrapleurally, allergic reaction, [Goehring & Grant] *1429

STREPTOMYCIN
  calcium chloride complex, local pain from intramuscular use, [Long & others] *25
  Dihydro—:See Dihydrostreptomycin
  effect on acoustic nerve, [Velasco] 1574—ab; [Heck] 1662—ab
  effect on bacterial resistance to isoniazid, [U. S. Public Health Service] 1661—ab
  Treatment: See also Eyes, tuberculosis; Knee, tuberculosis; Meningitis, tuberculous; Salmonella; Tuberculosis of Lung
  treatment, alone and combined with isonazid and PAS in pulmonary tuberculosis, [Mount] 1464—ab
  treatment, intramuscular plus oral isoniazid in tuberculous meningoencephalitis, [Suárez] 287—ab
  treatment of bacterial meningitis, [Alexander] *662
  treatment plus *p*-aminosalicylic acid in pulmonary tuberculosis, [Swedish National Association Against Tuberculosis] 93—ab; [Trendelenburg] 365—ab
  treatment plus *p*-aminosalicylic acid in tuberculosis of endometrium, 1584
  treatment plus congo red in tuberculous meningitis, [Pescetti] 1179—ab
  treatment plus isoniazid in pulmonary tuberculosis, [Pitts & others] *886
  treatment plus penicillin in diphtheria, [Schneider] 976—ab
  treatment vs. isoniazid and PAS in tuberculosis, London, 548
STREPTOTRICHOSIS: See Actinomycosis
STRESS
  emergency treatment of adrenocortical insufficiency, 1494
  extrinsic source of, in "functional" disorders, [Watts & Wilbur] *1192
  fractures of ribs in successive pregnancies, [Marsh] *26
  how hydrocortisone affects resistance of tissues to injury, [Selye] *1207
  Incontinence: See Urine
STRIA CUTIS DISTENSA
  rupture of abdominal wall through, during cortisone or corticotropin therapy, [Lawrence & others] *1526
"STROKES": See Brain hemorrhage
STRONGYLOIDIASIS
  treatment, 984
STRUMA: See Goiter
  Lymphomatosa (Hashimoto's Disease): See Thyroid
STUBBS Oration: See Lectures
STUDENTS: See also Children, school; Education; Schools; University
  American Student Health Ass'n., training college health physicians, [Sander] 756—C
  health services, report by Royal College of Physicians, London, 262
  high school, competitive athletics affect heart? 1495
  in Schools of Basic Sciences: See Basic Sciences
  Nurses: See Nurses and Nursing
STUDENTS, MEDICAL: See also Education, Medical; Graduates; Interns and Internships; Schools, Medical
  A.M.A. (delegates, presentation and addresses at, New York meeting), 725
  examined in basic sciences, 1952, also 1927-1952, *450; *451
  exchange, Interamerican Foundation for Postgraduate Medical Education, 538
  Fellowships: See Fellowships
  Foreign: See Physicians, foreign
  in place of iron lungs in outbreak of poliomyelitis, Denmark, 624
  Korean Medical Student Association organized in Japan, 540
  medical fund named for Dr. Norwood, Ark., 1346
  Scholarships: See Scholarships
  Teaching: See Education, Medical
  tuberculosis in, 922—E; [Miller] 1554—C
STUTTERING: See Speech defects
SUBDURAL: See Meninges
SUBMARINES
  medicine, conference by U. S. Navy, 623
SUBPHRENIC: See Diaphragm
SUCCESS
  basis of: persistently purposeful, hard work, 237—ab
  of applicants for research fellowships of Rockefeller Foundation, [Bowen] *693
SUCCINYLCHOLINE
  chloride (anectine) name accepted by Council, 709
  in electric shock, [Adderley] 95—ab
  iodide, use in electroshock therapy, [Holmberg] 1384—ab
SUCTION: See also Pressure, negative
  in resuscitation of asphyxiated newborn, [Beattie & Zwerling] *216
  negative pressure to determine capillary fragility with petechiometer, [Perry] 1373—ab
  pneumatic, applied to legs to induce hypotension in neurosurgery, [James] 768—ab
SUDAN III
  stain for lipid bodies in urinary sediment, [Parrish & Alpert] *1713
SUDECK'S SYNDROME
  dystrophy of extremities, [Hackethal] 1476—ab
SUGAR: See Glucose
  in Blood: See Blood
  in Urine: See Diabetes Mellitus; Glycosuria; Urine
SUICIDE
  attempted, by drinking ammonia, causes jejunal stricture and severe potassium deficiency, [Chassin & Slattery] *134
  attempted, future of patients recovering from, Denmark, 1649
  rate at record low, 1313—ab
SULESTREX: See Piperazine Estrone Sulfate
SULFALUMIN: See Aluminum *p*-aminobenzene
SULFHYDRYL: See Calsulfhydyl
SULFISOXAZOLE (Gantrisin)
  Diethanolamine, N.N.R., (Hoffmann-LaRoche), 921
  N.N.R., (Hoffmann-LaRoche), 1339
  toxicity: agranulocytosis; corticotropin for, [McCluskey] *232
SULFOBROMOPHTHALEIN SODIUM (Bromosulphalein)
  liver function test, near fatal reaction, [Mc Vay] *1622
  liver function test, results affected by multiple transfusions? 198
SULFONAMIDES
  Combinations: See Acet-Dia-Mer-Sulfonamides
  Intestinal flora changed by, 1676
  treatment of bacterial meningitis, [Alexander] *662
  treatment of streptococcic infections in the home, [Breese] *10
  treatment plus penicillin in gonorrhea, [Horne] 94—ab
SULFONES
  diazotized argentic (Di-Atox argentique-Jeanson) in leprosy, [Tzanck] 978—ab
SUMMER
  Camps: See Camps
SUPERFETATION
  can twins have different fathers? 199
SUPERSONICS: See Ultrasonics
SUPPLIES: See Medical Supplies
SUPPOSITORIES
  rectum lacerated by, [Turell] *136
SUPPURATION: See Abscess; Otitis Media; Ulcers
SUPRACLAVICULAR FOSSA
  evanescent mass in, hydrocele of neck, (reply) [Seed] 776
SUPRARENALS: See Adrenals
SURGEONS: See also Medicine, profession of; Physicians; Surgery
  American College of, (first regional South American Congress, Brazil), 70; (surgical scholarships established by), 539; (A.M.A. resolution on public relations), 839; 840; 841; 842; (cancer diagnosis) [Cameron] 870—C
  fail to cover their scalp hair at operations, [Prioleau] 477—C
  helper: a powerful patented magnet, [Duffy] 1067—C
  International College of, Brazilian section and first Panamerican congress, 70; 1543
  National Convention of (2nd) Colombia, 752
  Royal College of, London, (addition to), 1258; (Queen Elizabeth attended ceremony), 1453
  ship surgeon, work of, 1420—ab
  Travel Club, 341
SURGERY: See also under specific diseases, organs and operations as Cesarean Section; Peptic Ulcer, surgical treatment; Splenectomy; Stomach surgery; Thyroidectomy; Tonsillectomy
  Amputation: See Amputation
  Anesthesia in: See Anesthesia
  artificial hibernation, Laborit method, Paris, 262
  Belgian Congress of (6th), 1255
  Early Rising after Operation: See Convalescence
  Hypotension (Controlled) during: See Blood Pressure, low
  International Society of, 1724
  Kansas television experiment, (Committee article) [Schafer] *78; *554
  Moving Pictures Concerned with: See Moving Pictures, Medical (Reviews)
  Neurosurgery: See Neurosurgery
  operating room walls, color of, 1586
  operating table, position of patient on, 32—ab
  operations, cardiac arrest during, [Hosler] 1556—ab
  operations, ghost surgery, fee splitting, unnecessary operations, A.M.A. resolution on Dr. Hawley and others for publicizing, 839; 840; 841; 842
  operations (prolonged), encephalographic evaluation of anesthesia, [Santy] 1483—ab
  operations, renal function during, [Papper] *1686
  operations (unnecessary), removal of normal ovaries, [McCorriston] 1270—ab
  operative mortality, reducing in very aged (80 and older), [Ziffren] *994
  plastic, *Revista Latino Americana de Cirugia Plastica*, 464
  Postoperative: See also under specific conditions as Adrenals cortex; Biliary Tract; Lungs collapse; Neurofibromas; Pancreas inflammation; Thrombosis
SURGERY—Continued
  postoperative care: unnecessary routine orders, [Harbison] *397
  postoperative decompression of stomach and jejunum by gastrostomy, [Gilchrist] *232
  postoperative pain, reducing, [Lewis] 1479—ab
  postoperative study of thrombocytes, [Serra] 1381—ab
  postoperative urinary excretion of corticoids and 17-ketosteroids, [Hardy] 1378—ab
  postoperative vomiting, prevention, [Colombo] 1484—ab
  preoperative preparation, unnecessary orders, [Harbison] *396
  radical, advising on; problem in medical morality, [del Regato] 77—C
  risk in gynecologic patients with heart impairment, Brazil, 259
  Standard Nomenclature of Diseases and Operations: See Terminology
  Sutures: See Sutures
  Sympathectomy: See Sympathectomy
  transfusions of platelets only, [Minor & Burnett] *1225
  transplantations in, Italy, 1451
  Wangensteen Surgical Foundation established, Minn., 1347
SURGICAL
  Instruments: See Instruments
  Sutures: See Sutures
SURITAL Sodium: See Thiamylal Sodium
SUTURES
  constriction in treatment of pulmonary tuberculosis, [DeCamp] 971—ab
  skin, easy removal of, [Weinstein & Roberts] *1231
  unnecessary routine orders, [Harbison] *397
SWALLOWING
  dysphagia from contractile ring in lower esophagus, [Ingelfinger] 1269—ab
  dysphagia, lung complications in, [Jepson] 1489—ab
SWEAT
  anhidrosis, after using "efocaine", [Shapiro & Norman] *608
  drenching night sweats in diabetic, 483
  stains on metal: pH of skin, 295
SWEAT GLANDS
  miliaria, [Shelley] *670
SWEDISH: See also Scandinavian
  National Association Against Tuberculosis, *p*-aminosalicylic acid and streptomycin in pulmonary tuberculosis, 93—ab
SWEET (Clifford) Lecture: See Lectures
SWIMMING
  danger to heart of competitive athletics for high school students, 1495
SWIMMING POOL
  abrasion, granuloma after, [Rees & Bennett] *1606
SWINDLERS: See Impostors
SYMPATHECTOMY
  for chronic occlusive arterial disease, [Knox] 1660—ab
  for Ménière's disease, tinnitus, and nerve deafness, [Passe] 1069—ab
  late complementary adrenalectomy in thromboangiitis after, [Leriche] 1077—ab
  lumbar, in peripheral vascular diseases, [Palumbo] 279—ab
  obstetrical future of hypertensive women subjected to, [Milliez] 978—ab
  treatment of malignant hypertension, [Sokolow] 1465—ab
SYMPATHETIC: See Nervous System, Sympathetic
SYMPATHOLYTIC DRUGS
  anticoagulative action of, Paris, 1551
SYMPUS dipus: See Monsters
SYNCOPE
  glossopharyngeal neuralgia with, [Richburg & Kern] *703
SYNKAVITE: See Sodium menadiol diphosphate
SYNOVIAL MEMBRANE
  tuberculosis of knee, effect of streptomycin, [Smith & Bailey] *792
SYPHILIS: See also Venereal Disease; under specific organ or disease affected
  aortic aneurysm caused by, Turkey, 550
  Cardiovascular: See Cardiovascular Disease
  Cerebrospinal: See Neurosyphilis
  control: public health problems, [Bauer] *300
  course and management, value of penicillin, [Thomas] 363—ab
  Diagnosis: See Syphilis, serodiagnosis
  in would-be blood donors, Sweden, 1361
  incidence, decreased, Chile, 546
  number of population who contract, 295
  primary lesion, how soon does neurosyphilis appear after? 1395
  serodiagnosis, award for VDRL tests to Ad Harris, 258
  serodiagnosis, clarify syphilitic and false positive reactions, [Kahn] *1204
  serodiagnosis, treponemal immobilization test, (replies) [Magnuson] 986; (used in Ontario) [Miller] 1500
SYRINGE
  shield used in injecting radioactive gold, [Getzoff & others] *1431
  sterilizing in DTP immunization, [Sauer] *1315
SYRINGOMYELIA
  lumbosacral, probably familial, ulcerative disease of extremities, Belgium, 350

SOCIETIES AND OTHER ORGANIZATIONS

Acad.—Academy
Am.—American
A.—Association
Coll.—College
Commn.—Commission
Comm.—Committee
Conf.—Conference
Cong.—Congress
Dist.—District
Div.—Division
Found.—Foundation
Hosp.—Hospital
Indust.—Industrial
Inst.—Institute
Internat.—International
M.—Medical
Med.—Medicine
Nat.—National
Pharm.—Pharmaceutical
Phys.—Physicians
Soc.—Society
Surg.—Surgery
Surgs.—Surgeons
S.—Surgical

Aero M. A., 173, 539
Air Pollution Control A., 340
  Research and Development Command of the Air Force, 1154
Allegheny County (Pa.) M. Soc., 250
Alpha Gamma Delta, 174
  Kappa Kappa, 944
  Kappa Kappa, Alpha Mu Chapter, 1639
  Omega Alpha, 944
  Omega Alpha, University of Oklahoma Chapter, 746
Alumni A. of the Boston University School of Med., 62
  A. of the M. Department of the University of Alabama, 246
  A. of the University of Arkansas School of Med., 615
  A. of the University of Kansas, 858
Am. Acad. of General Practice, 251, 313, 1638
  Acad. of General Practice, Washington State Chapter, 173
  Acad. of Orthopaedic Surgs., 538
  Acad. of Pediatrics, 464
  Acad. of Tuberculosis Phys., 310, 949
  A. for Cancer Research, 340
  A. for the Advancement of Science, 174, 1441
  A. for Thoracic Surg., 1442
  A. of Friends and Families of Psychiatric Patients, 949
  A. of Genito-Urinary Surgs., 61
  A. of M. Social Workers, 1155
  A. of Neuropathologists, 618
  A. of Railway Surgs., 252
  A. of the History of Med., 249, 340
  A. on Mental Deficiency, 174
  Board of Internal Med., 536
  Board of Pediatrics, 464
  Board of Physical Med. and Rehabilitation, 949
  Board of Preventive Med., 1440
  Board of Psychiatry and Neurology, 537
  Board of Radiology, 747
  Broncho-Esophagological A., 1057
  Cancer Soc., 343, 618, 745, 747, 859, 946, 948, 1440, 1638, 1641, 1720
  Cancer Soc. Chapters: Cleveland, 1055; Linn County (Iowa), 745
  Cancer Soc. Divs.: Colorado, 861; Illinois, 857, 1346; Kentucky, 536; Tennessee, 250; Wyoming, 1154
  Chemical Soc., 1720
  Coll. of Anesthesiologists, 251
  Coll. of Cardiology, 465, 1057
  Coll. of Chest Phys., 342, 944, 1057, 1642
  Coll. of Chest Phys. Chapters: California, 338, 949; Illinois, 1152; New York State, 342; Virginia, 61; Wisconsin, 1722
  Coll. of Pathologists, 1539
  Coll. of Phys., 251, 615, 945, 1348, 1540
  Coll. of Radiology, 1055
  Coll. of Surgs., 539
  Coll. of Surgs., Montana Chapter, 1639
  Cong. of Physical Med. and Rehabilitation, 1442, 1642
  Dental A., 251
  Dermatological A., 538, 1057, 1249
  Diabetes A., 341, 342, 618, 857, 949
  Dietetic A., 1442
  Federation for Clinical Research, 62
  Found. for Tropical Med., 859
  Geographical Soc., 1056
  Geriatrics Soc., 342
  Goiter A., 62, 1441
  Gynecological Soc., 1249
  Hearing Soc., 62, 1641
  Heart A., 341, 342, 465, 538, 1441, 1542
  Hosp. A., 1723
  Inst. for the Tropics, 1247
  Inst. of Architects, 1642
  Inst. of Nutrition, 341
  Joint Distribution Comm., 1153
  Korean Found., 174, 1350
  Laryngological A., 465, 860
  League Against Epilepsy, 1350
  Legion, 1539
  M. A., 338, 462, 463, 464, 536
  M. Women's A., 341, 1642
  M. Writers' A., 1723
  Neurological A., 618, 1057
  Ophthalmological Soc., 340, 1057
  Orthopaedic A., 747, 1442
  Otological Soc., 343, 858
  Otorhinologic Soc. for Plastic Surg., Inc., 949
  Pediatric Soc., 1542
  Physical Therapy A., 617
  Psychiatric A., 62, 465, 948, 1155, 1642
  Psychosomatic Soc., 343, 1249
  Radium Soc., 465
  Red Cross, 1349
  Red Cross Chapters: Hawaii, 947; Montgomery County (Ohio), 340
  Rheumatism A., 341, 1247
  Social Hygiene A., 1155
  Soc. for Clinical Investigation, 539
  Soc. for Pharmacology and Experimental Therapeutics, 1641
  Soc. for the Study of Arteriosclerosis, 173
  Soc. for the Study of Sterility, 341
  Soc. of Maxillofacial Surgs., 465
  Soc. of Physical Med. and Rehabilitation, 1642
  Therapeutic Soc., 343
  Trudeau Soc., 252
  Urological A., 173, 949, 1057, 1155
  Urological A. Sections: Southeastern, 1638; Western, 1152
  Urological Research Found., Inc., 1057
Arizona State Board of M. Examiners, 1720
  State Board of Public Welfare, 744
Arkansas Acad. of General Practice, 171
  Heart A., 171
  M. Soc., 1152, 1346
  Obstetrical and Gynecological Soc., 1246
Armed Forces Epidemiological Board, 1640
Arthritis and Rheumatism Found. Chapters: Eastern Pennsylvania, 744; Louisiana, 1540
Associated Diplomates of the Nat. Board of M. Examiners, 173
A. d'Hygiène de l'Aisne, 1543
  for Research in Ophthalmology, 859
  Internat. for Multiple Sclerosis, 1724
  of Am. Phys., 61
  of Bone and Joint Surgs., 1642
  of Former Interns and Residents of Freedmen's Hosp., 462
  of M. Directors, 465
  of University Anesthetists, 1441
Atlanta Radiological Soc., 944
Atomic Energy Commn., 59, 1437
Austrian United Nations A.s, 1724
Ayerst, McKenna & Harrison Limited, 312
Baltimore City and Maryland Bar A., 218
  City Health Department, 218
  City M. Soc., Radiologic Section, 1153
Barbour-Randolph-Tucker (W. Va.) M. Soc., 617
Barlow, Brian E., Memorial Fund, 1246
Berg, Henry W. and Albert A., Inst. for Experimental Physiology, Sur..., and Pathology, 1139
Bertner Found., 857
Biological Photographic A., 1722
Black Hills District (S. D.) M. Soc., 947
Blair County (Pa.) M. Soc., 250
Blatt, Morris Lamm, Memorial Fund, 1539
B'nai B'rith, 171
Boeing Airplane Company, 947
Brazilian Soc. of Orthopaedics and Traumatology, 748
Brewer, Floyd Memorial Found., 945
British M. A., 63, 540
  Occupational Hygiene Soc., 1156
  Orthopedic A., 1346
Bronx Lion's Club, 172
Brooklyn Soc. of Internal Med., 249
Buchanan County (Mo.) M. and Dental Socs., 1439
California M. A., 338, 615
  M. A. Cancer Commn., 338, 615
  Office of Civil Defense, 744
  Soc. of Allergy, 1054
  Soc. of Pathologists, 338
  Southern, Soc. for Mental Hygiene, 58
  State Department of Health, 535
  State Department of Mental Hygiene, 943
  Tuberculosis A., 252
Canadian Neurological Soc., 748
  Physiological Soc., 1724
Cancer Pathology and Radiology Conf. (M. D. Anderson Hosp. for Cancer Research), 173
  Prevention Center of Chicago, 944
Carnegie Hero Fund Commn., 339
Cascade County (Mont.) M. S. Conf., 745
Casselberry Fund, 860
Central Council for Health Education, 1443
Charleston (W. Va.) Diabetes A., 173
Chattanooga-Hamilton County (Tenn.) M. Soc., 1722
Chicago Comm. on Alcoholism, 1054
  Dermatological Soc., 247
  Diabetes A., 171
  Gynecological Soc., 1437
  Heart A., 462, 1246
  Hosp. Council, 615
  Inst. of Med. of, 463, 948
  League for Nephritic Children, 58
  M. Soc., 171, 745
  Metropolitan Dermatological Soc. of, 171, 535
  Ophthalmological Soc., 536
  Orthopaedic Soc., 247
  Pathological Soc., 463
  Soc. of Allergy, 1437
  Soc. of Indust. Med. and Surg., 745
  Soc. of Internal Med., 615
  Soc. of Physical Med. and Rehabilitation, 339
  Urological Soc., 616
Childs, Jane Coffin, Memorial Fund for M. Research, 1441
Ciba Found. for the Promotion of Internat. Cooperation in M. and Chemical Research, 950, 1156
  Pharmaceutical Products, Inc., 249, 342
Cincinnati Otolaryngologic Soc., 60
Cleveland, Acad. of Med. of, 1439, 1440, 1640
  Area Heart Soc., 252
  Garfield Perry Stamp Club of, 464, 946
  Health Museum, 464, 946, 1640
  Otolaryngological Soc., 1440
Clinical Soc. of Genito-Urinary Surgs., 343
Coll. of Am. Pathologists, Middle Eastern District, 1721
  of Am. Pathologists, South Central Section, 173
Colorado Found. for Research in Tuberculosis, 943
  Heart A., 338
  M. Alumni A., 462
  State M. Soc., 338, 861
Columbia M. Soc. of Richland County (S. C.), 1248
  University Bicentennial Fund for the Medical Sciences, 250
Commercial Solvents Corporation, 1721
Commn. on Chronic Illness, 1440
  on Plasma Fractionation and Related Processes, 858
Comm. on Internat. Exchange of Persons, 747
Conf. Board of Associated Research Councils, 747
  of M. Librarians, 62
  of Presidents and Other Officers of State M. A.s, 464
  of State and Provincial Public Health Laboratory Directors, 540
  on Alcohol Studies, 746
  on Inhalation Therapists, 62
  on Institutional Care of the Chronically Ill, 62
  on Sanatorium Care, 62
Connecticut Conf. of Cardiovascular Diseases, 338
  Hosp. A., 1346
  M. Examining Board, 1638
  State Department of Health, 338
  State M. Soc., 338, 615, 857
Cooperative for Am. Remittances to Europe, Inc., 950
Coordinating Council for Cerebral Palsy, 746
Cuban Soc. of Anesthesiology, 1437
Cumberland (Ky.) County M. Soc., 1539
Dade County (Fla.) Cancer Inst., 616
Dallas Southern Clinical Soc., 464
Delaware Acad. of General Practice, 246
Denver Area Better Business Bureau, 1054
Detroit, Acad. of Surg. of, 1438
  Department of Health, 616
  Dermatological Soc., 1438
  Indust. Phys.' Club, 1540
District of Columbia M. Soc. of the, 1638
District of Oahu (Hawaii) Nurses' A., 947
Doctors' M. Found. (St. Louis), 463
Dominican Republic, M. Soc. of the, 1539
Douglas County (Neb.) M. Soc., 172
DuPont, E. I. de Nemours Company, 1218
Eastman Kodak Company, 1055
Electroshock Research A., 61
Endocrine Soc., The, 312, 948
England, Royal Coll. of Surgs. of, 1156
Equitable Life Assurance Soc. of the United States, 1247
Essex County (N. J.) M. Soc., 174, 249
Faculty Wives A. (Chicago M. School), 615
Falk Corporation, 340
Fayetteville (Ark.) Community Chest, 857
Federal Civil Defense Administration, 744
  Communications Commn., 1350
Federation of Am. Socs. for Experimental Biology, 341
Fetterman, Joseph L., Memorial Fund, 1055
Fiske Fund, 1722
Florida Clinical Diabetes A., 171
  M. A., 171, 338
  State Board of Health, 171
Food and Agriculture Organization, 465
Ford Found., 1543
Freedoms Found., 1437
French Nat. Soc. of Gastroenterology, 63
Fund for Research in Psychiatry, 539
Galen Soc., University of Michigan M. School, 59
General Federation of Women's Clubs, 464
  Motors, 1540
George Washington University Alumni A., 1539
  University M. Soc., 462
Georgia, M. A. of, 171
  Soc. of Ophthalmology and Otolaryngology, 1437
  Urological Soc., 1437
  Warm Springs Found., 944
German Soc. of Neurologists and Psychiatrists, 465
  [illegible] 5
  [illegible] 465
  [illegible]., 1350
  [illegible] General Hosp. A., 1440
Goodwill Industries of New York, 60
Greene County (Mo.) M. Soc., 1439
  James Sonnett, Club, 945
Griffis M. Coll. Library Fund, 946
Hadassah, 747
Harrison County (W. Va.) M. Soc., 61
Hartford (Conn.) M. Soc., 1720
Hawaii Territorial M. A., 343, 947
  Territory of, Department of Health, 538, 947
Health Bureau (Canal Zone), 1542
  Research, Inc., 1721
Hektoen Inst. for M. Research, 171, 462, 944
Hematology Research Found., 61

Societies and Other Organizations—Continued
Hibbs, Russell A., Soc., 341
House Officers' A. of New England Center Hosp., 536
Hutchings, Dr. Richard H., Memorial Trust Fund Comm., 1639
Idaho State M. A., 535
Illinois A. of M. Health Officers, 744
  Athletic Commn., 944
  Department of Public Welfare, 58
  Mental Health Authority, 744
  Psychiatric Society, 857
  Soc. for M. Research, 535
  Soc. for Mental Health, 58, 744, 1720
  State Department of Agriculture, 247
  State Department of Public Health, 1437
  State M. Soc., 247, 744, 1152, 1539
Indian Council of M. Research, 748
  M. A., 860
Indiana M. Advisory Comm., 944
Indust. M. A., 465, 1347
Inst. for M. Research (University of Louisville School of Med.), 536
  of Indust. Med., 61
Inter-Agency Planning Comm., 537
Interamerican Found. for Postgraduate M. Education, 538
Interdepartmental Health Council, 339
Internat. Acad., 861
  Acad. of Proctology, 341
  A. of Allergology, 174
  A. of Logopedics and Phoniatrics, 1156
  Coll. of Surgs., Brazilian Section, Panameri*can Cong., 1543*
  Coll. of Surgs., Great Lakes Div. of the U. S. Chapter, 61
  Comm. of Military Med. and Pharmacy, 1058
  Cong. for Microbiology, 1156, 1247, 1721
  Cong. for Sports Phys., 1724
  Cong. of Audiology, 252
  Co [illegible] and Clinical
  Co [illegible]
  Cong. of Hippocratic Med., 861
  Cong. of Leprosy, 1057, 1058
  Cong. of Ophthalmology, 251, 1542
  Cong. of Otolaryngology, 1346
  Cong. of Radiology, 748, 1346
  Cong. of Rheumatic Diseases, 540
  Cong. of the History of Science, 1539
  Cong. on M. Librarianship, 535, 1156
  Congs. of Tropical Med. and Malaria, 465, 1247
  Federation of Sports Med., 63
  Fertility A., 341
  Hosp. Cong., 63
  Hosp. Federation, 63
  League Against Rheumatism, 540
  M. Assembly of Southwest Texas, 1542
  Neurological Cong., 535, 1724
  Office of Documentation of Military Med. and *Pharmacy, 1058*
  Pharmacological Comm., 1724
  Physiological Cong., 1724
  Soc. for the Study of Biological Rhythms, *1724*
  Soc. of Angiology, 1156, 1724
  Soc. of Surg., 1724
  Union of Biological Sciences, 1721
  Union for the History of Science, 861
Inter-Soc. Cytology Council, 1155
Iowa Acad. of General Practice, 1720
  Conf. on Gerontology, 745
  Heart A., 58
  Inst. of Gerontology, 745
  State M. Soc., 945
  Trudeau Soc., 58
  Tuberculosis and Health A., 58
Irish M. A., 748
Italian Federation of Sports Med., 63
  Soc. for Obstetrics and Gynecology, 950
Jackson County (Mo.) M. Soc., 1250, 1721
Jefferson County (Ky.) M. Soc., 536
Jewish Federation of Chicago, 616
Journées Médicales, 1058
Juneau (Alaska) Mental Health Soc., 947
Kimble Glass Company, 540
Kings (N. Y.) County of, M. Soc. of the, 249
Kloman Instrument Company, 617
Korean M. Student A., 540
Kansas Acad. of General Practice, 58
  City Southwest Clinical Soc., 1250
  M. Soc., 59
  Northwest, M. Soc., 616
  Psychiatric Soc., 616
  State Board of Health, 1438
Kappa Delta Sorority, 538
Kellogg, W. K., Found., 858, 859
Kentucky Acad. of General Practice, 536, 945
  Cancer Soc., 536
  Comm. of Fractures and Other Trauma of the Am. Coll. of Surgs., 536
  Heart A., 536
  State Dental A., 1540
  State Health Department, 744
  State M. A., 536, 1539, 1540
  S. Soc., 247, 1638
Kessler Inst. for Rehabilitation, 947
Keystone Readers Service of Los Angeles, 1054
Kresge Found., 1723
Lasker, Albert and Mary, Found., 1441
Latin Am. Soc. of Orthopaedics and Traumatology, 748
Laurentian Hormone Conf., 174, 948
Leesburg (Ind.) *Lions Club, 536*
Levinson, Dr. Julian D., Research Found., 944, 1539
Libby, McNeill & Libby, 1438
Life Insurance M. Research Fund, 1641
Lilly, Eli, and Company, 1441
Louisiana State M. Soc., 248, 945
Louisville and Jefferson County (Ky.) Health Department, 248
Lovelace Found. for M. Education and Research, 536
Lowman, Charles LeRoy, Fund, 1054
McClintic Endowment, 463
Maine Department of Health and Welfare, 171
  M. A., 745
  Medico-Legal Soc., 1639
  Ophthalmological Soc., 745
Maricopa (Ariz.) Acad. of Med., 744
  County (Ariz.) M. Soc., 744, 1720
Marietta (Ga.) Junior Chamber of Commerce, 171
Marion County (W. Va.) M. Soc., 61
Maryland M. and Chirurgical Faculty of the State of, 248
  Radiological Soc., 1153
  Soc. of Anesthesiologists, 248
Massachusetts Department of Public Health, 342
  Heart A., Greater Boston Chapter, 1639
  Inst. of Technology, 745
  M. Soc., 248, 1347
  Phys. Art A., 248
  Public Health A., 1054
  Soc. of Examining Phys., 1347
Mead Johnson & Company, 464
M. *Advancement Trust of the Maumee Valley* (Ohio) Hosp., 537
  Library A., Inc., 618
  Research Council (England), 1350
  Socs. Executives Conf., 1442
Methodist Hall of Fame in Philanthropy, 1057
Metropolitan Life Insurance Company, 1642
Miami County (Ohio) M. A., 1541
Michael Reese Research Found., 1346
Michigan Bell Telephone Company, 1540
  Clinical Inst., 59
  Department of Health, 462, 1438
  Soc. of Neurology and Psychiatry, 858
  State M. Soc., 59, 1347
Milwaukee Acad. of Med., 1056
  Art Inst., 1722
  County M. Soc. 1722
Minnesota M. Found., 249
  State M. A., 59, 249
Mississippi State M. A., 462, 745, 1438
  Valley M. Soc., 1249
Missouri State M. A., 1153
Monongalia County (W. Va.) M. Soc., 61
Monroe (Iowa) Commercial Club, 1246
Montana Acad. of Oto-Ophthalmology, 745
  Northeastern, M. Soc., 745
  Obstetrical and Gynecological Soc., 745
Muscular Dystrophy A.s of Am., Inc., 1249
Mutual Security Agency, 1348, 1638
Myasthenia Gravis Found. Inc., 617
Nassau (N. Y.) Pediatric Soc., 1721
Nat. Acad. of Med. of France, 1347
  A. for Mental Health, 343, 1155, 1543
  A. for Retarded Children, 943
  A. of Methodist Hosps. and Homes, 1057
  A. of Science Writers, 342
  Cancer Inst., 618, 859, 946, 1440
  Catholic Kindergarten A., 174
  Comm. on the Aging, 1350
  Conf. of Christians and Jews, Topeka (Kan.) Chapter, 1438
  Conf. on Food Protection, 1642
  Conf. on Tuberculosis Workers, 252
  Cong. of Parents and Teachers, 251
  Found. for Infantile Paralysis, 340, 1055, 1155, 1250, 1348, 1441, 1641
  Found. for Infantile Paralysis, Honolulu Chapter, 947
  Found. for Infantile Paralysis, Portland (Maine) Office, 1054
  Fund for M. Education, 746
  Garden Inst., 463
  Health Council, 251, 1540, 1721
  Heart Inst., 342, 537, 1055, 1154
  Inst. of Neurological Diseases and Blindness, 946
  Insts. of Health, 339
  Manpower Council, 1540
  M. Advisory Comm., Selective Service System, 340
  M. A., 1351
  M. Fellowships, Inc., 1440
  M. Veterans Soc., 340
  Multiple Sclerosis Soc., 1723, 1724
  Nursing A., 1249
  Office of Vital Statistics, 539, 618, 747, 860, 949, 1057, 1155, 1249, 1350, 1442, 1543, 1643
  Research Council, 618, 948
  Restaurant A., 1642
  Safety Council, 464, 747, 949
  Sanitation Found., 1642
  Science Found., 618, 948, 1542
  Soc. for Crippled Children and Adults, 174, 1542
  Soc. for the Prevention of Blindness, 174
  Tuberculosis A., 252, 948, 1249, 1441
  Vitamin Found., 172, 1440
Nebraska Acad. of General Practice, 1639
  State M. A., 172, 463
  Trudeau Soc., 1441
Newark (N. J.) City Commn., 1439
New England Soc. of Anesthesiologists, 1642
  Soc. of Physical Med., 248
  Soc. of Psychiatry, 343
New Eyes for the Needy, Inc., 174
New Haven (Conn.) M. A., 615
New Jersey Dermatological Soc., 1540
  M. Soc. of, 249
  Orthopaedic Soc., 1247
  Radiological Soc. of, 1247, 1540
  Soc. of Physical Med., 250
  Soc. of Professional Engineers, 1154
  State Council for Improvement of School Health Services, 249
  State Department of Health, 1347
  Tuberculosis League, 249
New Mexico M. Soc., 59, 1540
New Orleans Graduate M. Assembly, 1246
Newport (Ark.) Rotary Club, 857
New York Acad. of General Practice, 1154
  Acad. of Med., 537, 1721
  Acad. of Sciences, 948
  Blood Banks A. of, 60
  City of, Department of Health, 339, 463
  County of, M. Soc. of the, 537
  Found., 339
  Greater, Hosp. A., 946
  Heart A., 249
  M. Soc. of the State of, 60, 172, 1247
  M. Women's A. of, 1723
  Psychoanalytic Inst. and Soc., 60
  Rheumatism A., 341
  Roentgen Soc., 537
  Soc. for Cardiovascular Surg., 249
  State Department of Health, 172, 339, 463, 1541, 1721
  State Department of Labor, 537
  State Department of Mental Hygiene, 536
  State Hosp. M. Alumni A., 858
  State Mental Health Commn., 858
  State Pharmaceutical A., 860
  State Public Health A., 1349
  State, Radiological Soc. of, 1247
  State School Nurse Teachers A., 463
  State School Phys. A., 463
  State, Women's M. Soc. of, 60
  Tuberculosis and Health A., 1056, 1348, 1541
Noland, Lloyd, Found., 535
North Carolina Eye, Ear, Nose and Throat Soc., 1640
  M. Soc. of the State of, 172, 1348
  State Board of Health, 173
North Dakota Cancer Soc., 537
  State M. A., 537, 1541
North Pacific Soc. of Neurology and Psychiatry, 465, 946
Northwest Region Ski Patrol A., 947
Northwestern University Cleft Lip and Palate Inst., 857
Norwood Fund, 1346
Nu Sigma Nu, 172
Office of Civil Defense (Wis.), 859
  of Defense Mobilization, 538
  of Vocational Rehabilitation, 1440
Ogden (Utah) S. Soc., 250
Ohio Department of Health, 342, 1721
  State M. A., 859
  State M. Golfers' A., 617
Oklahoma State M. A., 463, 946
  Trudeau Soc., 1441
Onondaga County (N. Y.) M. Soc., *1639*
Oregon State Board of Higher Education, 946
Pacific Coast Oto-Ophthalmological Soc., 343
  Coast S. A., 251
  Dermatologic A., 860
  Northwest Obstetrical and Gynecological A., 1542
Palmer, Lowell M., Fund., 1056
Pan Am. M. A., 1722
  M. Women's Alliance, 1723
Panray Corporation, 342
Parker, Ernest H. and Dora H., Fund for M. and S. Research, 615
Passano Found., 536
Pennsylvania Acad. of General Practice, 250
  Acad. of Physical Med., 250
  A. of Clinical Pathologists, 1721
  Department of Health, 537
  Department of Public Instruction, 537
  Department of Welfare, 537
  M. Soc. of the State of, 463, 537, 1248, 1640
  Radiological Soc., 250
  Railroad, 1642
  Tuberculosis and Health Soc., 537, 1348
Phi Beta Pi, 946
  Chi, 172, 247
  Delta Epsilon, 615, 616
  Delta Epsilon Fraternity, Alpha Eta Chapter. 338
Philadelphia, Coll. of Phys. of, 1438
  County M. Soc., 1055
  Laennec Soc. of, 538
  Rheumatism Soc., 744
  Textile Inst., 1055
Philippines, Department of Health of the, *540*
Picker, James, Found., 342
Pittsburgh, Eye Bank of, 463
  Roentgen Soc., 1248
  S. Soc., 250
Population Reference Bureau, 1155
Portal House, 1054
Portland (Me.) M. Club, 745
Protein Found., Inc., 858
Radiation Therapy Alumni A. (Bellevue Hosp.), 249
Raleigh County (W. Va.) M. Soc., *251*
Reed, Walter, Soc., 252, 944

Societies and Other Organizations—Continued
Reno (Nev.) S. Soc., 1639
Rensselaer County (N. Y.) Health Department, 1541
Retina Found., 1641
Rhode Island M. Soc., 60
Riley, James Whitcomb, Memorial A., 1349
Rio de Janeiro Soc. of Neurology, 338
Rochester and Monroe County (N. Y.), Health A. of, 858
  (N. Y.) Acad. of Med., 746
Rockefeller Found., 339, 748, 1543, 1642
  Inst. for M. Research, 747, 1438, 1439, 1540
Rocky Mountain Cancer Conf., 861
  Mountain Radiological Soc., 1250
Rome (Italy) S. Soc., 947
Royal Coll. of Obstetricians and Gynaecologists, 1156
  Coll. of Phys., 535
  Netherlands M. A., 748
  Soc. of Med., 1156
Runyon, Damon, Memorial Fund for Cancer Research, Inc., 1036, 1721
St. Louis City Hospital No. 1 Alumni A., 249
  M. Soc., 172, 1639
St. Mary's Group of Hosps. Alumni, 1438
San Diego County (Calif.) M. Soc., 1246
Scheider, Julius and Marie, Memorial Fund for Neuropsychiatry, 859
Schering Corporation, 341, 342
Schiff, Herbert N., Memorial Fund, 1348
Selective Service *System*, 340
Sharp & Dohme, 1439
Shell Oil Company, 464
Short Hills (N. J.) Junior Service League, 174
Skinner, Edward Holman, Memorial Fund, 1250
Società Italiana di Reumatologia, 344, 1056
Soc. and Home for Cripples (Copenhagen, Denmark), 339
  for Investigative Dermatology, Inc., 340, 919
  for Pediatric Research, 1542
  for the Study of Development and Growth, 618
  for Vascular Surg., 464
  of Am. Bacteriologists, 1641
  of [illegible] 539
  of [illegible] 171
  of [illegible]
Solomon, Philip, Memorial Club, 1437
South Carolina M. A., 60, 1154
  Soc. of Ophthalmology and Otolaryngology, 1640
South Dakota Acad. of Ophthalmology and Otolaryngology, 617
  State M. A., 617, 1440
Southeastern Allergy A., 174
Southside (L. I.) Clinical Soc., 250, 946
Southwest Allergy Forum, 618
Southwestern Life Insurance Company, 1541
Sprague, Otho S. A., Memorial Inst., 462
Squibb, E. R., & *Sons*, 342
  Inst. for M. Research, 948
Stamford (Conn.) Acad. of General Practice, 1638
Stanford Research Inst., 1346
Sub-Specialty Board of Allergy, 536
Surgs.' Travel Club, 341
Swedish Royal Acad. of *Sciences*, 246
Syracuse (N. Y.) Acad. of Med., 339, 1639
  M. Alumni A., 1639
Tacoma (Wash.) Acad. of Med., 251
Tektronic Found. of Portland, Ore., 1440
Tennessee Acad. of Preventive Med. and Public Health, 1440
  Department of Mental Health, 1349
  Diabetes A., 1349
  Heart A., 1349
  Middle, M. A., 1349
  State Health Department, 250
  State M. A., 250, 1440
  Valley M. Assembly, 1722
Texas Acad. of Internal Med., 1541
  Dermatological A., 1542
  Diabetes A., 1541
  Heart A., 1542, 1722
  Heart A., Houston District Chapter, 1722
  M. A., 464, 947, 1541
  Neuropsychiatric A., 1542
  Orthopedic A., 1542
  Railway and Traumatic S. A., 1542
  Soc. of Anesthesiologists, 1542
  Soc. of Gastroenterologists and Proctologists, 1542
Thirty-Third Degree Scottish Rite, 1155
Toronto (Ohio) Kiwanis Club, 1247
Tri-County (W. Va.) M. Meeting, 61
Tri-State Hosp. Assembly, 62
  M. A. of the Carolinas and Virginia, 860
Trudeau Found., 1639
Trust Territory of the Pacific, 246
Tucker, Gertrude Chandler, Memorial Fund, 339
Tulane History of Med. Soc., 1437
Tulsa (Okla.) Acad. of General Practice, 746
Turin (Italy), Acad. of Med. of, 1543
United Cerebral Palsy, 618, 746, 860, 1152
  Community Services of Metropolitan Boston, 1143
  Hospitals Fund (Milwaukee), 340
  Jewish Appeal, 1247
  Mine Workers of America Welfare and Retirement Fund, 1248
  Nations Internat. Children's Emergency Fund, 1543
  Nations' Korean Reconstruction Agency, 950
U. S. Atomic Energy Commn., 537
  Comm., Inc., 947
  Department of Health, Education, and Welfare, 342, 1351
  Department of the Interior, 1248
  Public Health Service, 58, 340, 535, 538
  Steel Corporation, Tennessee Coal and Iron Division, 535
University of Colorado M. Alumni A., 1152
  of Illinois Coll. of Med. Alumni A., 247
  of Kansas Alumni A., 1539
  of Michigan Conf. on Aging, 945
  of Texas Alumni A., 1248
  of Virginia M. Alumni A., 173
Upper Peninsula (Mich.) M. Soc., 616
Utah State Department of Health, 341
Van Pelt & Brown, Inc., 61
Vermont State M. Soc., 464
Veterans Administration Council of Chief Consultants, 943
Virginia Acad. of General Practice, 61, 251
  Diabetes A., 61
  M. Soc. of, 1349
  Soc. of Ophthalmology and Otolaryngology, 61
  State Board of Health, 1349
  S. Soc., 1349
Wangensteen, Owen H., S. Found., 1347
Washington (D. C.) Acad. *of* Surg., 1539
  Heart A., 1539
  State Department of Health, 538
  State M. A., 538
Wayne University Coll. of Med. Alumni A., 172
Wenner-Gren Found., 948
Western Conf. of Anesthesiologists, 1437
  Soc. of Electroencephalography, 62, 949
West Virginia Acad. of General Practice, 251, 1349, 1722
  Acad. of Ophthalmology and Otolaryngology, 61, 859
  A. of Pathologists, 1722
  Diabetes A., 173, 1722
  M. Licensing Board, 1154
  Obstetrical and Gynecological Soc., 1722
  Organizations' Council, 859
  Pediatrics Soc., 1722
  Soc. of Anesthesiologists, 1722
  State Health Conf., 61
  State M. A., 251, 617, 1055, 1248, 1542, 1722
  Trudeau Soc., 1441
  University Alumni A., 1248
Williams & Wilkins Company, 947
Winthrop-Stearns, Inc., 1721
Wisconsin Soc. of Anesthesiologists, 251
  State Board of Health, 1056
  State Department of Public Instruction, 1542
  State M. Soc. of, 1722
Wohl Found., 59
Woman's Auxiliaries: California, 338; Illinois, 247; Kansas, 59; Nebraska, 172; New York, 60; South Dakota, 617; Wyoming, 538
Wood, Leonard, Memorial, 1057
Worcester Found. for Experimental Biology, *948*
World Confederation for Physical Therapy, 950
  Conf. on M. Education, 344
  Cong. on Fertility and Sterility, 341
  Federation for Mental Health, 1543
  Health Assembly, 540, 861, 1056
  Health *Organization*, 62, 246, 344, 465, 540, 861, 1056, 1247, 1440, 1543
  M. A., *343, 344, 748, 860*, 947
Wyoming State M. Soc., 538, 1056, 1349
Yellowstone Valley (Mont.) M. Soc., 1639

T

T-TUBE
  drainage, simple receptacle (Venopak unit and bottle) *for* [*Watson*] *814
T. E. D. Elastic Stockings, 1235
TEM: See *Triethylene* Melamine
TV: See Television
TABES DORSALIS
  crises treated with corticotropin, [Weiner & *Mendelsohn*] *705
TACHYCARDIA
  paroxysmal supraventricular, methoxamine for, [Berger & Rackliffe] *1132
  treatment, magnesium sulfate injections, 373
  ventricular, dibucaine and phenobarbital in, [Bisteni] 1171—ab
TAEGU MEDICAL SCHOOL, KOREA
  Koreans grateful for medical books, 1062
TAENIA
  disinfection of "perishable materials" against tapeworm ova, 1396
  Infection with: See Teniasis
TAFT (*Robert A.*) Memorial Scholarship: See Scholarships
TALC
  U.S.P. spread over myocardium inside pericardial sac for coronary disease, [Thompson & Plachta] *678
TALKING: See Speaking; Speech; Telephone
TAMPONADE
  hemopericardium with, during anticoagulant therapy, [Rose & others] *1221
TANTALUM
  gauze in presence of infection, [Koontz] 1557—ab
  gauze to repair hernias, 775
  Mesh Implant in Large *Incisional* Hernia (film review), 272
  mesh, late results of hernial repair with, [Douglas] 96—ab
TAPAZOLE: See Methimazole
TAPE RECORDING
  teaching auscultation by endless loop tape *recording*, [*Geckeler & others*] *1335
TAPEWORM: See Taenia
TAPEWORM INFECTION: See Teniasis
TASTE
  loss of, as toxic effect of methimazole (tapazole) [Hallman & Hurst] *322
TATTOOING
  of nevus flammeus for permanent camouflage, [Conway] *666
  sandpaper abrasion treatment, [Strakosch] 187—ab
TAX: See also Medicolegal Abstracts at end of letter M
  income, statements before U. S. House Committee on Income Tax Deduction of Medical Expenses, (by Dr. Allman) 1149; (by Dr. Martin) 1150
  privilege by hospitals: physicians give percent of fees for using hospital, 728
  relief, federal bills on, A.M.A. attitude on, 1049; 1240
TEACHING: See Education, Medical
TECA Low Volt and Pulse Generator, Model CD4P, 47
TECHNOLOGISTS
  A.M.A. resolution on establishing Bureau to *deal with their relation to physicians*, 728; 740
  Infectious Hazards of Bacteriological Techniques, Part I. The Inoculating Needle (*film review*), 965
  Kimble Methodology Research Award, 258; 540
  medical, *in* hospitals, statistics on, *159; *160; 165—E
  medical, schools for, approved by A.M.A., *160
"TEEN-AGE": See Adolescence
TEETH: See also Dentifrices; Dentistry; Jaws
  caries, climate and endemic dental fluorosis, [Galagan] 1566—ab
  caries, fluoride treatments for children, Mich., 1438
  caries, *p*H of saliva and, 483
  Caries, relation to fluoridation of water: See Water supply
  caries, research on, Sweden, 264
  denture (broken) in esophagus causes middle lobe syndrome, [Valle & Cloutier] *812
  dentures, replacement by National Health Service, London, 1063
  extraction of wisdom teeth, 198
  infection, generalized dermatosis *caused by*, [illegible]
[illegible] (Rendu-Osler-Weber's *disease*), *fatal* hemoptysis from arteriovenous fistula, [Israel & Gosfield] *40
  submucous, of cecum cause of gastrointestinal *hemorrhage* in man 75, [Bockus] *1228
TELEPAQUE: See Acid, iodopanoic
TELEPHONE
  broadcasts, recordings, Tex., 464
TELESCOPIC Lenses: See Lenses
TELEVISION
  advertising, portrayal of physicians in, 822—E; (A.M.A. resolutions on) 847; 848
  at University of Kansas Medical *Center*, (Committee article) [Schafer] *78; *554
  Award to A.M.A. Bureau of Health Education, 168
  color, at A.M.A. New York *meeting*, 51; 716
  films for, supplement to list, 54
  new series, "M.D.," 459
  popular health television shows by Cleveland Health Museum, Ohio, 1541; 1640
TELEX Hearing Aid, Model 953, 821
TEMPERATURE: See Climate; *Cold*; Heat; Seasons; Weather
  Indoor: See Air conditioning
TEMPERATURE, BODY: See also Fever; Thermometers
  instrument for continuous *recording*, [Weiss & Ripstein] *610; (correction) 1058
TEMPORAL LOBECTOMY: See Brain surgery
TEMPORAL REGION
  whistling noise *over* synchronous with the heart beat, 774
TENDONS: See also Fascia
  tenosynovitis, Primer on Rheumatic Diseases, *528
TENIASIS: See also Taenia
  tapeworm pernicious anemia, Finland, 958
TENNESSEE
  Valley Authority, psychiatry in industry, 240—E
TENOSYNOVITIS: See Tendons
TENSILON: See Edrophonium
TENSION: See Stress
  Premenstrual: See Menstruation
TERMINOLOGY: See also "Words and Phrases" under Medicolegal Abstracts at end of letter M
  list of titles for committees to hear complaints from public, 833; (Reference Committee report) 834
  STANDARD NOMENCLATURE OF *DISEASES* AND OPERATIONS used by hospitals, *158
TERPENE: See *Toxaphene*
TERRAMYCIN: See Oxytetracycline

TESTES: See also Gonads; Scrotum; Spermatozoa
  Hormone: See Androgens
  intratesticular estrogenic implants in prostatic cancer, [Darget] 1276—ab
  N.N.R. statement on, revised, (Council report) 414
  torsion of spermatic cord, [Deming & Clarke] *521
  undescended, no testes in scrotum: danger of cancer? 375 (reply) [Herman] 1678
  undescended, treatment of cryptorchidism in 4-month-old baby, 986
TESTOSTERONE: See Androgens
TETANUS
  antitetanic serum, serum neuritis after using, [Garvey] 363—ab
  antitoxin, serum neuritis, [Watkins] 1371—ab
  antitoxin, should it be given 5 days after stepping on rusty nail? 200
  booster injection advisable in allergic child? *1084*
  immunization (pediatric), precautions in, [Sauer] *1314
  in France, 1731
  toxoid, alum precipitated-U.S.P., N.N.R., (Sharp & Dohme) 142; (Lilly) 333; (U. S. Standard) 921
  toxoid and diphtheria toxoids (alum-precipitated) and pertussis vaccine, convulsion in *infant after injection,* 1289
  toxoid and diphtheria *toxoid, alum precipitated-U.S.P., N.N.R., (Lilly) 332*
  toxoid and diphtheria toxoid and pertussis vaccine alum precipitated, aquagen, N.N.R., (U. S. Standard Products) 921
  toxoid and diphtheria toxoids with pertussis vaccine, combined, N.N.R., (U. S. Standard Products) 921
  toxoid, aquagen, N.N.R., (U. S. Standard Products) 921
  toxoid, how effective in preventing tetanus *when given soon after injury? 1677*
  toxoid-U.S.P., N.N.R., (Lilly) 333
  treatment: 7 measures, [Saint] 1383—ab
TETANY
  treatment, magnesium sulfate injections, 373
TETRACAINE (Pontocaine)
  hydrochloride-U.S.P., N.N.R., (Winthrop-Stearns) 1535
TETRAETHYLAMMONIUM CHLORIDE
  control pain in acute pancreatitis, [Berk] *1
TETRAETHYLTHIURAMDISULFIDE (Antabuse): See Disulfiram
TETRALOGY of Fallot: See Heart, anomalies
TEXAS
  Medical Association, Physicians Placement Service of, (Council article) *552
THANITE: See Isobornyl Thiocyanoacetate
THEELIN: See Estrone
THELESTRIN: See Estrone
THEOPHYLLINE
  salt, evaluate diuretics given orally, [Greiner & Gold] *1130
THEOPHYLLINE ETHYLENEDIAMINE: See Aminophylline
THERAPEUTICS: See also Baths; Blood Transfusion; Drugs; Occupational Therapy; Roentgen Therapy; Self-Medication; Ultrasonics; under names of specific diseases and substances
  diagnosis and treatment, *1095*—ab
  International Congress of, at Madrid, 625
  new type of "armchair" therapy cart, [Klain] *517
  of "functional" disorders, [Watts & Wilbur] *1192
THERMOMETERS
  instrument for continuous recording of body temperature, [Weiss & Ripstein] *610; (correction) 1058
  mercurialentis in maker of, [Hunter] 1380—ab
  rectum lacerated by, simplified treatment, [Turell] *136
THERMOTHERAPY: See Diathermy
THIAMINE
  prevention of kidney stones; also treatment, 1082
THIAMYLAL SODIUM (Surital Sodium)
  N.N.R., (Parke, Davis) 333
THIERSCH Operation: See Rectum procidentia
THIGH: See also Hip
  test to determine heating efficacy of diathermy apparatus, (Council report) *1235
THIOBARBITAL
  treatment of hyperthyroidism, [Solomon & others] *201
THIOCYANATES
  treatment, intravenous to relieve hypertensive headache, [Saint-Pierre & others] *493
THIOPENTAL SODIUM (Pentothal Sodium)
  U.S.P. (N.N.R.) *(Abbott) 1714*
THIOPHANIUM
  derivative, intravenous use, [Nicholson] 1661—ab
THIOPHOS: See Parathion
THIOSEMICARBAZONE: See also Amithiozone
  treatment of tuberculosis, [Rognato] 876—ab
THIOURACIL
  6-Ethyl—: See Ethylthiouracil
  Propyl—: See *Propylthiouracil*
  treatment of hyperthyroidism, [Solomon & others] *201
38TH PARALLEL MEDICAL SOCIETY
  meeting in Korea, 179
THOMAS, HUGH OWEN
  request unpublished data on, [LeVay] 961—C
THOMPSON *Lecture*: See *Lectures*
THOMPSON, STEWART GORDON, death, 338
THORACIC DUCT
  Fistula: See Fistula
THORACOPLASTY. See Thorax surgery
THORACOTOMY: See Thorax surgery
THORAX: *See also Chylothorax*; Hemothorax; Pneumothorax; Pneumothorax, Artificial; Ribs
  biopsy techniques in intrathoracic lesions, [Storey] 1268—ab
  chest injuries, tracheostomy in post-traumatic care, [Shaw] 1267—ab
  chest pain, postural vertigo relieved by traction of cervical spine, [Davis] 1466—ab
  chest x-rays, heart disease discovered by *mass radiography, Norway, 549*
  chest x-rays, heart disease discovered on microfilms, [Slattery] *1595
  chest x-rays, importance of intrathoracic coin lesions, [Shiney] *1734*—ab
  chest x-rays in Southern Greenland, [Christensen] 1075—ab
  chest x-rays in subphrenic abscess, [Zaslow & Sachs] *1213
  chest x-rays survey, Worchester, Mass., [Scarcello] 960—C
  chest x-rays, technical modification, [Currie] **1230*
  precordial noises heard at a distance from the chest, [Bean] *1293
  stabbed in chest, decortication of heart, [Skinner & Farr] *234
  surgery, anesthesia in intrathoracic surgery, Brazil, 1451
  surgery, exploratory thoracotomy in pulmonary lesions, [Bernatz & Clagett] *379
  surgery, fatal hemorrhagic syndrome in, Brazil, 1451
  surgery, problems of anesthesia for operations *within chest, [Phelps & McAfee] *1004*
  surgery, thoracoplasty for pulmonary tuberculosis, late results, [Aufses] 1469—ab
  surgery, thoracoplasty, thoracic duct fistula after, [Cummins] 1478—ab
  surgery, thoracotomy plus endoscopy, in cicatricial obliteration of esophagus, [Barbosa & others] *1103
  Tietze's syndrome, cause of chest pain and chest wall swelling, [Motulsky & Rohn] *504
THORN TEST
  after giving isoniazid, [Marzo] 1379—ab
  measurement of adrenal cortical function with ACTH, 1129—ab
  with posterior pituitary extract before laparotomy, [Massone] 769—ab
THREADWORMS: See Oxyuriasis
THROAT: See also Larynx; Nasopharynx; Neck; Pharynx; Tonsils
  infection, erythromycin for, [Herrell & others] *1605
  infection, misuse of antibiotic troches, 533—E; [Kutscher] 1270—ab
  infection, subluxation atlanto-axial articulation after, [Stein & others] *131
  sore (streptococcus), treatment in the home, [Breese] *10
  swabs, cultivate tubercle bacilli from, Fin*land,* 181
THROMBIN: See Blood prothrombin
THROMBOANGIITIS OBLITERANS
  differentiation between Raynaud's Disease and Buerger's disease, 564
  of retinal vein, heparin or bishydroxycoumarin for, 1455
  treatment, adrenalectomy, [Tingaud] 875—ab
  treatment, adrenalectomy after sympathectomy, [Leriche] 1077—ab
  treatment, trypsin injection, [Innerfield & others] *597
THROMBOCYTES: See Blood platelets
THROMBOCYTOPENIA: See Purpura, thrombopenic
THROMBOEMBOLISM: See Thrombosis
THROMBOPHLEBITIS: See also Phlebitis; Phlebothrombosis
  cavernous sinus, penicillin for, Turkey, 1455
  treatment, trypsin injection, [Innerfield & others] *597
THROMBOPLASTIN
  formation, factors involved, [vanCreveld] 1482—ab
THROMBOSIS: See also Embolism; Phlebothrombosis; Thrombophlebitis
  at aortic bifurcation, [Beaconsfield] 1265—ab
  at aortic bifurcation, resection and homograft replacement in, [Oudot] 1265—ab
  character of thrombi in bacterial endocarditis, (Minot lecture) [Keefer] *1397
  Coronary: See *also Myocardium infarction*
  coronary, does exertion precipitate? [Richardson] 88—ab
  coronary, trypsin injection for, [Innerfield & others] *597
  in gynecology and obstetrics, anticoagulant treatment [König] 194—ab
  mesenteric venous, anticoagulants in, [Koller] 99—ab
  of central retinal vein, trypsin injection for, [Innerfield & others] *597
  of internal carotid, [Moniz] 1483—ab
  parietal, cardiovascular collagenosis with, [Becker] 968—ab
THROMBOSIS—Continued
  postoperative, early ambulation and *dicumarol prevents,* [Borgström] 1669—ab
  renal vein, in infants, [Warren & others] **700*
  retinal vein (central), [Cassady] 966—ab
  sagittal sinus, subdural effusions in infancy, [Guthkelch] 282—ab
  thromboembolic complications, thrombocyte study, [Serra] 1381—ab
  treatment, anticoagulant, fatal pulmonary embolism with, [Merz] 1672—ab
  treatment, recanalize thrombosed arteries, under anticoagulant *therapy,* [Wright] *1571*—ab
  treatment, *trypsin injection,* [Innerfield & others] *597
  venous, diaphragmatic hernia or diaphragmat*ic eventration* and, [Lian] 770—ab
THRUSH: See Moniliasis
THUMB: See Fingers
THYLOGEN: See Pyrilamine
THYROID: *See also Goiter; Goiter, Toxic;* Parathyroid
  abnormal physiology, studied by means of radioactive iodine, Italy, 867
  cancer relation to nodules on, [Williams] 92—ab
  Carcinoma of the Thyroid (film review), 1262
  disease, scintillation counter in *diagnosis,* [Barrett & others] *1414
  disease, treatment with radioactive iodine, International Congress discusses, 627
  Excision: *See Thyroidectomy*
  extract, effect on nitrogen balance in elderly, [Kountz] 1665—ab
  extract, postoperative myxedema after preoperative use of, [Bartels] 89—ab
  Hashimoto's struma, [Olesen] 1079—ab
  Hyperthyroidism: See Hyperthyroidism
  Hypothyroidism: See Hypothyroidism
  Inflammation: See Thyroiditis
  nodules, relation to cancer, [Williams] 92—ab
  nodules (solitary), *375*
  pathology and antithyroid drugs, discussed at Belgian Congress of Surgery, 1255
  storm, treatment of, 1504—ab
  tumors, benign solitary adenoma, 1583
THYROIDECTOMY
  myxedema after preoperative use of antithyroid drugs, [Bartels] 89—ab
THYROIDITIS
  subacute (deQuervain's disease), cortisone for, [Lasser] **1133*
THYROTOXICOSIS: See Goiter, Toxic
TICKS
  wood, warning against, Ill., 1246
TIETZE'S DISEASE
  cause of chest pain and chest wall swelling, [Motulsky & Rohn] *504
TINEA
  capitis (ringworm of scalp), 1289
TINNITUS
  related to hypertension?; treatment? 776
  treatment, sympathectomy, [Passe] 1069—ab
TISSUES: See also Cells; Mucous Membranes; Skin; under names of specific organs
  Fat: See Lipodystrophy
  gaseous nitrogen elimination from as test of lung efficiency, [Boothby & others], *1000
  injury, how hydrocortisone affects resistance to; granuloma pouch technique, [Selye] **1207*
  scar, effect of vitamin C deficiency on healed wounds, 334—E
  soft, calcifications in cord lesions, [Liberson] **1010*
  soft, infection, erythromycin for, [Herrell & *others] *1603*
  therapy, mechanism of action, [Li Voti] 1736—ab
TOAST: See Bread
TOBACCO
  alcohol amblyopia, [Maxwell] *1176*—ab
  cigarette smoke effect on peripheral *vascular* system, radioactive iodinated albumin to indicate volumetric change; value *of filtered* cigarette, [Friedell] *897
  study of cigarettes, cigarette smoke, and filters, [Chemical Laboratory] (filter-tip cigarettes) *917; (special low-nicotine cigarettes) *1035
  use of by ulcer patients, 774
  use of, in relation to cancer of lung in physicians, [Wynder] 1072—ab
TODAY'S HEALTH: See American Medical Association
TOES
  painful, 1084
TOILET FACILITIES: See also Bedpan
  dermatitis of buttocks of child *from toilet* seat, (reply) [Greenhouse] 108
  excreta from, on trains; role in *transmission* of poliomyelitis, 1183
TOLAZOLINE HYDROCHLORIDE (Benzazoline; Priscoline)
  effect on cerebral blood flow in mitral stenosis [Dewar] 1482—ab
  name accepted by Council, 709
TOLSEROL: See Mephenesin
TOLULEXIN: See Mephenesin
TOMAC Iceless Oxygenaire, Model E, 333
TOMATO JUICE
  Banquet Table Brand, 1535

TONGUE
  cancer, surgical treatment, [MacFee] 189—ab
  herpes zoster on [Stepan] 1575—ab
TONSILLECTOMY
  responsibility of otolaryngologist and internist in removing focal infection, 811—ab
TONSILLITIS: See Tonsils, infected
TONSILS
  broken needle in tonsillar fossa, 984
  Excision: See Tonsillectomy
  infected, effects of penicillin, aureomycin and oxytetracycline on, [Denny] 189—ab
  infected, erythromycin for, [Herrell & others] *1605
  peritonsillar abscess, trypsin injection for, [Innerfield & others] *597
TOOTH: See Teeth
TOOTHPASTES; Toothpowders: See Dentifrices
TORBOT ileostomy outfit, 821
TORO VILLA, G., death, Colombia, 753
TORTICOLLIS
  due to cervical lymphadenitis, 1292
TOURIST CAMPS, HOSTELS, etc.
  health dept. certifies, Mich., 462
  nursing homes to care for aged and infirm, build on motor court plan, [Garton] 76—C
  trailer courts, sanitation in, 258
TOURISTS: See Travel
TOURNIQUET
  method for bloodless phlebotomy, 881
TOWN HALL MEETINGS
  medical, meeting at Durham, N. C., 537; 1154
TOXAKIL: See Toxaphene
TOXAPHENE (Phenatox; Phenacide, etc.)
  Committee report on names for insecticides, *819
  poisoning (fatal) in child, [Pollock] 1473—ab
TOXEMIA
  in Pregnancy: See Pregnancy
TOXIC Goiter: See Goiter, Toxic
TOXICOLOGY: See Poisoning
TOXOID: See Diphtheria; Tetanus
TOXOPLASMOSIS
  diagnosis with cytoplasma dye test; 2 types (congenital and acquired); treatment, 1634—E
  hydatiform mole and, [Bleier] 480—ab
  mental deficiency, and, [Burkinshaw] 1277—ab
TRACHEA: See also Tracheotomy; Medicolegal Abstracts at end of letter M
  collapsible, erythromycin therapy, [Herrell & others] *1605
  Fistula: See Fistula
  injuries, tracheostomy in, [Shaw] 1267—ab
  intrathoracic, repair of wounds of, [Hanner] 1469—ab
  obstruction from benign lymphoid hyperplasia, [Olson] 1561—ab
  surgery, resection and replacement with prosthesis, [Craig] 1470—ab
TRACHEOSTOMY: See under Trachea
TRACHEOTOMY
  emergency, 1525—ab
  treatment of impaired respiration in bulbar poliomyelitis, [Frank] 757—C
TRACHOMA
  problem of, Israel, 471
  treatment, oxytetracycline, Turkey, 1455
TRACTION
  of cervical spine, relieves postural vertigo, [Davis] 1466—ab
  skeletal, in treatment of fractures, 25—ab
TRADE
  Hazard; Poisoning etc: See Industrial Diseases; Industrial Health; etc.
  Unions: See Industrial Trade Unions
TRAFFIC Accidents: See Automobiles
TRAILER Courts: See Tourist Camps
TRAINING: See Education, Medical; Nurses and Nursing; Medical Record Librarians; Technologists
TRAINS: See Railroads
TRANSFUSION: See Blood Transfusion
TRANSORBITAL Lobotomy: See Brain surgery
TRANSPLANTATION: See also Grafts (cross reference)
  Bulletin: See Journals
  of Skin: See Skin graft
  surgical, Italy, 1451
TRANSPORTATION: See Automobiles; Aviation; Railroads; Ships; Travel
  of Sick and Wounded: See Ambulance
TRANSURETHRAL Resection: See Prostate surgery
TRANSVESTISM
  hormonal, psychiatric and surgical treatment, [Hamburger & others] *391; [Wiedeman] 1167—C; [Ostow] 1552—C
TRAUMA: See also Accidents; Burns; Fractures; Korean War; Wounds; under specific organs and regions as Abdomen
  abrasion in swimming pool, granuloma after, [Rees & Bennett] *1606
  as cocarcinogen in oil worker, [Kotin] 1170—ab
  crush injuries, acute renal failure in, 1340—E
  crush syndrome in ophthalmology, [Weinstein] 1658—ab
  herpes zoster ophthalmicus after, 1291
  Industrial: See Industrial Accidents
  injury, on mechanism through which hydrocortisone affects resistance to, granuloma pouch technique, [Selye] *1207
TRAUMA—Continued
  Italian Society of Traumatology, 71
  Latin American Society and Brazilian Society of Traumatology, 748
TRAVEL: See also Automobiles; Aviation; Railroads
  A.M.A. San Francisco Meeting (1954) post-convention trip to Hawaii, 1719
  Pan American Medical Ass'n 9th International Cruise Congress, 1722
  Surgeons' Travel Club, 341
  tourists' enteritis; value of olive oil in the diet (reply) [Martinez Diaz] 200
TREATIES
  Bricker Resolution, dangers of treaty law still exist, 823—E; (A.M.A. resolutions on) 842
TREATMENT: See Therapeutics
TREES: See Pine; Wood
TREPONEMA
  immobilization test, (replies) [Magnuson] 986; (used in Ontario) [Miller] 1500
  pallidum Infection: See Syphilis
TRICHINOSIS
  diagnosis, using rats, [Beck] 274—ab
  incidence; program for control recommended by National Conference, 241—E
  liver dysfunction, hypoalbuminemia, and typhoid agglutinins, [Kushlan] *221
TRICHLOROETHYLENE
  in obstetrics, [Morgan] 1273—ab
TRICHOMONAS
  vaginalis, London, 755
  vaginitis in sexual dysfunctions, [Candiani] 287—ab
TRICHOPHYTON
  Infection: See Dermatophytosis
  tonsurans: See Tinea capitis
TRIETHYLENE MELAMINE (TEM)
  toxicity: dermatitis, [Frumin & Rubenstone] *914
  treatment, clinical use, compared with nitrogen mustard, [Bond] 1655—ab
  treatment of neoplastic diseases, [Lenti] 370—ab
TRILOGY of Fallot: See Heart, anomalies
TRI-STATE *Medical Journal*: See Journals
TROCHES
  antibiotic, misuse of, 533—E
  reactions to aureomycin and procaine penicillin troches, [Kutscher] 1270—ab
yl Biscoumacetate
amoxine
U. S.; Armed Forces;
cal Preparedness
See also Filariasis;
  Malaria; Schistosomiasis; Yellow Fever
  Institute of Public Health and, Mexico, 1359
TROPICAL MEDICINE
  International Congresses of, 465
TROPICAL ULCER: See Leishmaniasis
TRUSTEE: See Journals
TRUSTEES: See American Medical Association *Board of Trustees*
TRUTH SERUM: See Medicolegal Abstracts at end of letter M
TRYPANOSOMIASIS
  American, transmitting agents, Ecuador, 180
  Chagas' disease in blood donors, [Passalacqua] 1481—ab
  Changas' disease, Mexico, 1360
  humoral immunity of dogs infected with Trypanosoma cruzi, Brazil, 1358
TRYPARSAMIDE
  research, Belgian awards for, N. J., 1540
TRYPSIN (Enzar; Parenzyme; Tryptar)
  inhalations in respiratory conditions with thick sputum, [Unger & Unger] *1109
  intravenously in gunshot wound, [Cetrulo] *605
  parenteral injection, clinical effect in 538 patients, [Innerfield & others] *597
TRYPTAR: See Trypsin
TUBE: See also Catheters
  Levin, passed into stab wound of stomach and intestines, for postoperative decompression, [Gilchrist] *232
  nasogastric, unnecessary routine surgical orders, [Harbison] *397
  plastic, to replace portion of parotid duct, [Perkins] 1376—ab
  polyethylene, to replace trachea, [Craig] 1470—ab
  polyvinyl, plastic esophageal prosthesis, [Chalnot] 193—ab
  T-tube drainage, simple receptacle (Venopak unit and bottle) for, [Watson] *814
TUBERCLE BACILLUS
  Boeck's sarcoid and, [Refvem] 93—ab
  cultivation from laryngeal and pharyngeal swabs, [Saenz] 1385—ab; [Chaves] 1661—ab
  cultivation from throat swabs and gastric lavage, Finland, 181
  detection, buffering gastric juice with crystalline disodium phosphate, [Roth] 1079—ab
  resistance to isoniazid, effect of streptomycin, [U. S. Public Health Service] 1661—ab
TUBERCULIN
  allergy, detection of: "Finnish" process, Paris, 1651
  reaction (atypical) in active tuberculosis; Mantoux test; Kveim test, [Arany] *491
  reaction, inhibitory action of isoniazid on, [Guallar Segarra] 287—ab
TUBERCULOMA
  of brain and cerebellum, [Zamora] 94—ab
TUBERCULOSIS: See also Tuberculosis of Lung; under names of specific diseases and organs
  bronchiectasis relation to, [Müller] 365—ab
  case finding in Southern Greenland, [Christensen] 1075—ab
  committee named, Illinois, 1638
  complications: diabetes mellitus, frequency of, [Siedhoff] 1489—ab
  complications: leprosy, [Gray] 1665—ab
  Control: See also Tuberculosis, immunization, BCG
  control committee appointed by governor, Va., 1349
  control, Switzerland, 1065
  diagnosis, atypical tuberculin reactions in active tuberculosis, [Arany] *491
  education, director appointed: Dr. Wilson, 1249
  hospital (U.S.P.H.S.) at Fort Stanton, N. Mex., to be closed, 1062
  hospitals, statistics on, *145; *149
  immunization, BCG campaign, Turkey, 550
  immunization, BCG, Denmark, 1649
  immunization, BCG in Island of Bornholm, Denmark, 470
  immunization, BCG, of medical students, value, 922—E; [Miller] 1554—C
  immunization, BCG, repeated massive doses of BCG by mouth, Paris, 755
  immunization, BCG studies, Norway, 1065
  immunization, BCG, tuberculosis in Bornholm after, [Olsen] 1475—ab
  immunization, BCG vaccine, administration, Australia, 624
  immunization, BCG, vaccine, oral type used for intramuscular injection thru error, Brazil, 260
  immunization, BCG, what can be expected from? [Hoogendorn] 96—ab
  in armed services, Norway, 1361
  in Bornholm after BCG vaccination, [Olsen] 1475—ab
  in child, primary type, treatment, [Pierret] 561—ab
  in children, acute type, origin of, Paris, 1551
  in children in primary grades, Turkey, 1455
  in children, primary type, exclude children from orphanage or hospital? 1496
  in young child, prognosis of arrested type, 1499
  incidence in American medical students, 922—E; [Miller] 1554—C
  incidence, increased, N. Y., 1348
  leprosy relation to, (Brazil) 547; [Gray] 1665—ab
  luposa, isoniazid for, [Russell] 1670—ab
  National Congress on Silicosis and, Mexico, 1165
  Prevention: See Tuberculosis, control; Tuberculosis, immunization
  research, James Alexander Miller Fellowship, 1056; 1541
  treatment, *p*-aminosalicylic acid-sodium ascorbate solution, hemolytic anemia after, [Lust] 1281—ab
  treatment, isoniazid, (Finland) 181; (Paris) 263; (Sweden) 473
  treatment, isoniazid, in miliary type, [Messmer] 1671—ab
  treatment, isoniazid, Thorn's reaction after, [Marzo] 1379—ab
  treatment, isoniazid, toxic hepatitis with jaundice, [Randolph & Joseph] *38
  treatment, isoniazid, toxic psychosis, [Chu] 1668—ab
  treatment, isoniazid vs. iproniazid, convulsant effects, [Reilly & others] *1317
  treatment, isonicotyl hydrazone of glycuronolactone, Paris, 1731
  treatment, program, N. Y., 339
  treatment, streptomycin calcium chloride complex, local pain from intramuscular injection, [Long & others] *25
  treatment, thiosemicarbazone, [Rognato] 876—ab
  Trudeau Societies (new), 1441
  Vaccine, BCG: See Tuberculosis, immunization
  verrucosa cutis from swimming pool abrasion, [Rees & Bennett] *1606
TUBERCULOSIS OF LUNG (pulmonary tuberculosis)
  complications: diabetes mellitus, frequency, [Siedhoff] 1489—ab
  complications: prognosis in pregnant women, [Meyer] 284—ab
  complications: rupture of abdominal wall through stria cutis distensa, [Lawrence & others] *1526
  complications: sarcoidosis; atypical tuberculin reactions, [Arany] *491
  diagnosis, signs and symptoms, 1580
  in children, exclude them from orphanage or hospital, 1496
  in children, surgical treatment, National Congress of Pediatrics discuss, Chile, 351
  sputum, glass vs. waxed cardboard containers, 107
  surgical treatment, [Bickford] 194—ab
  surgical treatment, lung resection, [Young] 366—ab

TUBERCULOSIS OF LUNG—Continued
  surgical treatment, segmental resection, [Overholt] 969—ab
  surgical treatment, thoracoplasty, late results, [Aufses] 1469—ab
  treatment, p-aminosalicylic acid and streptomycin in, [Swedish National Association Against Tuberculosis] 93—ab
  treatment, p-aminosalicylic acid; glycosuria and hyperglycemia after, [Robel] 1488—ab
  treatment, p-aminosalicylic acid; hypopotassemia with hypertension, [Jones] 1488—ab
  treatment, antibiotic aerosols, [Paraf] 1485—ab
  treatment, artificial pneumothorax, air embolism after, 293; (replies) [Bean; Birch] 1500
  treatment, artificial pneumothorax (modern extrapleural) [Cutler] *1096
  treatment, bed rest for minimal type, [Mitchell] 1463—ab
  treatment, criteria of success, [Rotach] 653—ab
  treatment, impact of modern therapy in large municipal hospital, [Weiss] *890
  treatment, isoniazid, [Medical Research Council] 876—ab; [Xéran] 1079—ab
  treatment, isoniazid aerosolization, [Wagner] 1379—ab
  treatment, isoniazid, death after, [Scheibe] 1282—ab
  treatment, isoniazid, streptomycin, alone and combined with p-aminosalicylic acid, [Mount] 1464—ab
  treatment, isoniazid vs. streptomycin and p-aminosalicylic acid, Medical Research Council report, London, 548
  treatment, isoniazid with streptomycin each 3rd day also p-aminosalicylic acid, [Pitts & others] *886
  treatment, streptomycin, [Viel V.] 371—ab
  treatment, streptomycin plus p-aminosalicylic acid, [Trendelenburg] 365—ab
  treatment, suture constriction, [DeCamp] 971—ab
  treatment, viomycin, [Pitts] 968—ab
TUBES: See Tube
TUBOCURARINE CHLORIDE
  like compounds affecting skeletal muscle, 495—ab
  sensitivity to, in myasthenia gravis, [Pelikan] 1173—ab
  U.S.P., N.N.R., [Squibb] 333
TUCKER (Gertrude Chandler) Memorial Fund: See Foundations
TULANE UNIVERSITY
  portraits presented to, La., 1246
TUMORS: See also under names of specific organs and types of tumors
  Chromaffin Cell: See Pheochromocytoma
  giant cell, of femur, 1498
  in identical twins, 532—E
  Malignant: See also Cancer; Sarcoma
  malignant superficial, high energy electrons for, [Evans] 1462—ab
  Polypous: See Polyps
  treatment with radioactive isotopes, International Congress reports, Spain, 627
TUNA Fish: See Fish
TURNER, EDWARD L., new secretary for A.M.A. Council, 1244
TWINS
  acute leukemia in, [Cooke] *1028
  can twins have different fathers, 199
  identical, as donor of skin graft for severe burn, [Blandford] 279—ab
  identical, neoplasms in, 532—E
TYPHOID
  agglutinins in trichinosis, [Kushlan] *221
  carriers, [Walter] 360—ab
  immunization; proper procedure, [Tuft] 183—C
  outbreaks, Ohio, Mass., 342
  treatment, cortisone and chloramphenicol combined, [Dana] 1574—ab
  water chlorination controls, 520—ab
TYPHUS
  classic and murine, research on, Mexico, 1359
  in rats and rat ectoparasites, Galveston, Te[illegible] ab
  new [illegible] Mexico, 1359
  resid [illegible] 1559—ab
TYVID: See Isoniazid

U

UN: See United Nations
ULCERS: See also Colitis, ulcerative; Peptic Ulcer; under specific organs and regions
  diabetic, infected; trypsin injection for, [Innerfield & others] *597
  familial ulcerative disease of extremities, Belgium, 350
  ischemic purulent, of leg, trypsin injection for, [Innerfield & others] *597
  Tropical: See Leishmaniasis
  ulceration of skin after intravenous use of arterenol, [Uricchio & others] *607; [Bifulco] 1554—C
ULTRASONICS
  effects on growing bone, [DeForest] 275—ab
  treatment of painful postoperative neurofibromas, [Tepperberg] 358—ab
ULTRAVIOLET RAYS
  color of summer clothing and, 292
  electric arc welding: at what distance is it harmful to bystander's eyes? 1083
  examination of lead line, [Dangl] 1180—ab
  irradiated dried plasma (pooled), serum hepatitis from, [Murphy & Workman] *1421
  irradiated plasma serum hepatitis from, [Albrecht & others] *1423
  sterilization in barber shops, 775
  sterilizing razors to prevent homologous serum hepatitis, (reply) [Murray] 656
UNCONSCIOUSNESS: See Sleep
UNDERGRADUATE Work; Students; etc.: See Education, Medical; Schools, Medical; Students; Students, Medical; University
UNDERNUTRITION: See Nutrition; Starvation
UNDERSEA CRAFT: See Submarines
UNDERTAKERS
  procedures to protect, in handling bodies carrying contagious diseases, 108
UNDULANT FEVER: See Brucellosis
UNIONS: See Industrial Trade Unions
UNITED CEREBRAL Palsy-Max Weinstein Award: See Prizes
UNITED MINE WORKERS OF AMERICA
  Welfare and Retirement Fund, A.M.A. resolution on, 849
UNITED NATIONS
  Korean Reconstruction Agency, medical help for Korea, [Rusk] 476—C
  World Health Organization: See World Health Organization
UNITED STATES: See also American; National; Medicolegal Abstracts at end of letter M
  Air Force: See Aviation, U. S. Air Force
  Armed Forces: See Armed Forces
  Armed Forces Journal: See Journals
  Army: See Army, U. S.
  Atomic Energy Commission: See Atomic Energy
  Citizenship requirement for foreign trained physicians, [Burgess & Graef] 1260—C
  Civil Defense Administration: See Civilian Defense
  Congress: See also subhead: House Committee
  Congress, Dr. Hamilton's statement before, on extending "Doctor-Draft Law", 166
  Congress, Legislation considered by: See Laws and Legislation, federal
  Congressional Committees, letters sent by Dr. George F. Lull to, regarding fireworks, Indian hospitals, factory inspection, 168
  Constitution, A.M.A. resolutions on proposed 23rd amendment to, 845
  Department of Defense: See Armed Forces
  Department of Health, Education and Welfare with cabinet status, [Bauer] 722; (address of the Secretary, Mrs. Hobby) 740; (A.M.A. resolution on) 835; 843
  Department of Health to be concerned with USPHS and all government hospitals, A.M.A. resolution on creating, 845
  employees, A.M.A. resolution disapproves Executive Order on security requirements for, 850
  employees A.M.A. resolutions on medical and hospital benefits for, 838
  Food and Drug Administration: See Food
  government, Commission on Organization of Executive Branch of, A.M.A. views on S. 106 and S. 1514, 54
  government credentials, licensure on, *437
  Government Employees: See subhead: Employees
  Government Positions for Physicians: See Physicians, positions open
  Government Hospitals: See Hospitals, government; Hospitals, veterans
  House Committee on Income Tax Deduction of Medical Expenses, (statement before by Dr. Allman), 1149; (statement by Dr. Martin) 1150
  House Committee on Reorganization of U. S. Department of Defense, statement before by Dr. Allman, 1150
  House Subcommittee on Hospitals of Committee on Veterans Affairs, Dr. Martin's statement before, 1342
  Laws and Legislation: See Laws and Legislation, federal
  Navy: See Navy, U. S.
  News and World Report: See Journals
  Public Health Service: See Health, U.S.P.H.S
  Veterans Administration: See Veterans Administration
UNIVERSITY: See also Education, Medical; Schools, Medical; under names of specific universities
  anesthetists, Association of, announce formation, 1441
  appointments of applicants for fellowships of Rockefeller Foundation, [Bowen] *693
  birth rate among college graduates, 1155
  epileptics in college, [Lennox & Markham] *1691; (chart) *1692
  health service, training program for physicians, [Sander] 756—C
  Instituto Superior transformed into university, Mexico, 1259
  Latin American, new study plan, 1259
  Mexican universities, second assembly, 1165
UNIVERSITY—Continued
  of Arkansas Medical Center in Little Rock, (picture) 857
  of Buenos Aires, (overcrowding in medical school), 752; (changes in medical professorship), 752
  of California, (course on radioactive isotopes), 1437
  of Chicago, (dedicate Argonne Cancer Research Hospital at), 247
  of Chile, postgraduate school created, 866
  of Colorado Medical Center in Denver, (Dr. Manlove *goes to*), 1346
  of Edinburgh celebrates bicentenary of Lind's "Treatise on Scurvy," 1258; 1331—ab
  of Guadalajara, new study plan, 1259
  of Illinois, (Committee for Crippled Children), 1539
  of Kansas Medical Center, television at, (committee article) [Schafer] *78; *554
  of Minnesota, (multiple sclerosis diagnostic clinic) 1720
  of Southern California School of Medicine, 1346
  of Washington, Health Science Building, (picture), 340
  of Wisconsin, (course in obstetrics) 1440
  Premedical Work: See under Basic Sciences; Education, Medical, premedical
  Students: See Students; Students, Medical
URANIUM
  acute toxicity of carnotite ore dust, [Wilson] 1459—ab
UREA
  in Blood: See Blood
URECHOLINE: See Bethanechol Chloride
URETERS
  surgery, electrolyte imbalance after ureterointestinal anastomosis, [Berglin] 281—ab
  surgery, hyperchloremic acidosis after ureterosigmoidostomy, 334—E
  surgery, ureteroileal neocytostomy; ileal segment as substitute ureter, [Rack] *516
URETHRA
  complications of pelvic fractures, [Newland] *1515
  Inflammation (nonspecific): See Urethritis
  spasm preventing withdrawal of catheter, [Johnson] 1564—ab
  stricture, 503—ab
  surgery, vesicourethropexy in women with urinary stress, [Ward] 1378—ab
URETHRITIS
  chronic, in female, 376
  Gonococcic: See Gonorrhea
  Reiter's disease, corticotropin in, [Larson] 1070—ab
  Reiter's syndrome, *529; [Hall] 1169—ab
URINALYSIS: See also various subheads under Urine
  prolonged bed rest in nephritis in young boy dependent on, 107
URINARY SYSTEM: See also Bladder; Genitourinary System; Kidneys; Ureters; Urethra
  infection, antibiotics for, [Spink] *587
  infection, erythromycin for, [Herrell & others] *1605
  infection (refractory), combined antibiotic therapy (AOC), [Eisenberg & others] *1302
  infection, trypsin injection for, [Innerfield & others] *597
  Roentgen Study: See Urography
URINATION: See also Urine, incontinence; Urine, suppression
  frequent desire to urinate in 72-year-old patient, 1586
  Inducing: See Diuretics
URINE
  Albumin in: See Albuminuria
  Alkaptonuria: See also Ochronosis
  alkaptonuria osteoarthropathia and osteoporosis, [Bürger] 1277—ab
  arsenic in, from arsenic in water supply, 1394
  Examination: See Urinalysis
  excreta from toilets on trains; role in transmission of poliomyelitis, 1183
  incontinence, frequency and treatment in elderly patients, Sweden, 959
  incontinence, hazards of lobotomy, [Freeman] *489
  incontinence, methantheline (banthine) for enuresis, [O'Malley] 1172—ab
  incontinence (nocturnal enuresis), controlled by conditioned response to automatic electric alarm, [Geppert] *381; [Fischer] 1732—C
  incontinence (stress), exercising sphincter muscles for, [Wharton] 1561—ab
  incontinence (stress), vesicourethropexy in women with, [Ward] 1378—ab
  17-ketosteroids and corticoids excreted after operations, [Hardy] 1378—ab
  17-ketosteroids, effect of cortisone in adrenogenital syndrome, [Franckson] 1573—ab
  17-ketosteroids, effect of monichol on cholesterol metabolism, [Sherber & Levites] *682
  odor in house from cats, how to obliterate, 200
  Polyuria: See Diabetes Insipidus
  Porphyrin in: See Porphyria
  Protein in: See Albuminuria
  retention, fluid and electrolyte disturbances in prostatism, [Lapides] *1305
  riboflavin excretion, cocarboxylase effect on, in heart disease, Italy, 1452

URINE—Continued
  sediment, lipid bodies in, Sudan III stain for, [Parrish & Alpert] *1713
  Sugar: See also Diabetes Mellitus; Glycosuria
  sugar, "St. Louis Dreypak" to examine urine for, [Olmsted] 275—ab
  suppression: oliguria, acute renal failure in crush injuries, 1340—E
  suppression, potassium in anuric tubular nephropathy, [Dérot] 978—ab
  suppression: traumatic anuria, [Gelfand & Shapiro] *319
UROGENITAL SYSTEM: See Genitourinary System
UROGRAPHY
  excretory, sensitivity to contrast materials during, 655
UROKON Sodium: See Sodium Acetrizoate
UROLOGY
  American Urological Research Foundation, Inc., 1057
URTICARIA
  multiple positive reactions to allergic skin tests, 1498
  persistent, 1291
  role of emotions in, [Frumess] *1419
UTENSILS: See Cooking and Eating Utensils
UTERUS: See also Placenta
  Adnexa: See Oviducts
  anomalies, pregnancy in woman with double cervix, 1395
  Cancer: See UTERUS CANCER *following*
  cervix, abnormal, 1036—ab
  cervix, hostility to spermatozoa, treatment guided by crystallization of cervical mucus, [Campos da Paz] 1372—ab
  cervix laceration (severe) complicating pregnancy and labor, 375
  contractions cause of obstetric fracture-dislocation of pelvis, [Urist] *127
  denervation by culdotomy, [Doyle] 480—ab
  hemorrhage (abnormal), diagnosis; management, [Reich & others] *1679
  hemorrhage (benign), irradiation for, 564
  Hemorrhage (Functional): See Menstruation
  Hydatidiform Mole: See Placenta tumors
  inertia, [Hepp] *894
  Mucosa: See Endometrium
  retroversion as normal position, [Perlin] 1178—ab
  rupture (spontaneous) during pregnancy, [Felmus] 1473—ab
  rupture (spontaneous), Turkey, 1363
  surgery, Cesarean Hysterectomy (Porro) PMF 5204, (film review) 477
  suspension, repair of cystocele and rectocele, pregnancy advisable after? 1582
  tumors, sarcoma, [Williams] 480—ab
  tumors, uterine bleeding sign of, [Reich & others] *1679
UTERUS CANCER
  adenocarcinoma of uterine corpus, 499—ab; 996—ab
  cancer of cervical stump, 1392
  diagnosis, abnormal uterine bleeding in, [Reich & others] *1679
  diagnosis of microcarcinoma of cervix uteri, [Zacherl] 100—ab
  diagnosis, simultaneous use of cytology and biopsy in, [Daro] 558—ab
  histological grading of cancer of uterine cervix, [Graham] 975—ab
  in situ, [Siddall] 267—C
  surgical treatment, Italy, 753
  treatment of cervical stump carcinoma, [Tice] 1071—ab
UVEITIS
  danger of fish lens protein injection for cataract, [Breinin] *698; (National Research Council report) *707; 710—E

V

VA: See Veterans Administration
VACCINATION: See also Immunization; under names of specific diseases as Smallpox; Whooping Cough
  any danger in of child with eczema? 1392
  BCG: See Tuberculosis, immunization, BCG
  certificates, international, new, 1161
  not a cure for brucellosis in cows, 881
VACCINE: See also Biologic Products; under names of specific diseases as Whooping Cough
  therapy plus aureomycin in brucellosis, [Poli] 1484—ab
VACCINIA
  fatal generalized, after smallpox, [Keidan] 1570—ab
  milkers' nodules, 50—E; [Green] 757—C; [Lane] 1067—C; [Ronchese] 1732—C
VAGINA
  artificial, formation of, in transvestism, [Hamburger & others] *395; [Wiedeman] 1167—C; [Ostow] 1552—C
  smear, prenatal sex determination in, [Artner] 371—ab
VAGINITIS
  treatment of streptococcic infections in the home, [Breese] *10
  Trichomonas: See Trichomonas
VAGOTOMY: See Nerves, vagotomy
VAGUS Nerve: See Nerves
VAN METER Prize: See Prizes
VAPOJETTE supersaturation attachment, 1235
VALVULOTOMY: See Mitral Valve; Pulmonary Valve
VANDERBILT UNIVERSITY
  plans two story S. Rudolph Light Laboratory for Surgical Research, 250
VAPOPHOS: See Parathion
VAPORIZERS
  for insecticides, health hazard, (Committee report) *1232; 1238—E
VARICELLA: See Chickenpox
VARICOSE VEINS
  chronic disease, [Biegeleisen] 1563—ab
  Esophageal: See Esophagus
  surgical treatment, Ecuador, 180
  treatment, Elastic Stockings (Ritter Co.), 239
  treatment, T.E.D. Elastic Stockings, 1235
VARIDASE: See Streptokinase-Streptodornase
VARIOLA: See Smallpox
VASCULAR: See Blood Vessels
VASOMOTOR SYSTEM
  increased tone: pathogenesis of essential hypertension, 1435—E
  vasospastic disorder: Raynaud's phenomenon, [Scherbel] 1463—ab
VASOSPASTIC Disorder: See Vasomotor Mechanism
VASOXYL: See Methoxamine Hydrochloride
VATER'S Ampulla: See Ampulla of Vater
VEGETABLES: See also specific names as Tomato Juice
  juices, analysis, London, 1650
VEGETATIVE Nervous System: See Nervous System, Sympathetic
VEINS: See also Blood Vessels
  Caval: See Vena Cava
  circulation disturbances and arthrosis of knee, [Robecchi] 192—ab
  Fistula: See Fistula, arteriovenous
  grafts (autogenous) for arterial defects for wounded in Korea, [Cooke] 190—ab
  grafts, (free autogenous) to carotid arteries in treating neck tumors, [Conley] 360—ab
  grafts, plication to reduce caliber of, [Schmitz] 1557—ab
  grafts, portacaval shunt operation with, [Theron] 771—ab
  hepatic, catheterization to assess portal venous hypertension, [Paton] 1573—ab
  Inflammation: See Phlebitis; Thrombophlebitis
  Injection into: See Injections, intravenous
  phlebodynia, new, possibly epidemic, disease, [Pearson] 968—ab
  Phlebotomy: See Venesection
  Portal: See Portal Vein
  retinal (central) heparin or bishydroxycoumarin therapy of thromboangiitis obliterans, Turkey, 1455
  subclavian, obstruction, [Ehni] 476—C
  Thrombosis of: See Thrombosis
  Transfusion via: See Blood Transfusion
  Varicose: See Varicose Veins
VENA CAVA
  inferior, ligation of in cardiac decompensation, [Cloetens] 766—ab
  portacaval shunt operation with vein grafts, [Theron] 771—ab
VENEREAL DISEASE: See also Gonorrhea; Lymphogranuloma, Venereal; Social Hygiene; Syphilis
  course (21st) by USPHS, 1648
  number in population who contract syphilis or gonorrhea, 295
VENEREAL WART: See Condyloma acuminatum
VENESECTION
  bloodless phlebotomy, tourniquet method for, 881
  phlebotomy for hemochromatosis, [Houston] 1481—ab
VENOM: See Snakes
VENOPAK
  unit and bottle, simple receptacle for T-tube drainage, [Watson] *814
VENTILATION: See Air conditioning
  Hyperventilation: See Respiration
VENTRICLE: See Heart
VENTRICULAR FIBRILLATION
  drugs useful in cardiac resuscitation, [Leeds] *1411
  transient, quinidine in, [Schwartz] 874—ab
VENTRICULAR TACHYCARDIA: See Tachycardia
VERATRUM
  alkaloids treatment of malignant hypertension, [Sokolow] 1465—ab
  viride vs. dibenzyline for hypertension, [Miller] 1375—ab
VERILOID: See Alkavervir
VERRUCA: See also Tuberculosis verrucosa cutis
  Acuminata: See Condyloma acuminatum
  lymphostatic verrucosis of amputation stump: pressure bandage for, [Loewenthal] 475—C
  plantar, cured by procaine injection, [Branson] 1471—ab
  plantar (intractable), excise plantar condyles of metatarsal head for, [DuVries] *1202
  role of emotions in, [Frumess] *1418
  vulgaris virus, 711—E
  warts, 984
VERTEBRAE: See Spine
VERTIGO: See also Syncope
  aural, Ménière's symptom complex; [Gundrum] 273—ab
VERTIGO—Continued
  aural, Ménière's syndrome and its treatment, [Preber] 770—ab
  aural, new nerve pathway (chorda tympani) in Ménière's disease, section cures, [Rosen] 1564—ab
  aural, sympathectomy for Ménière's disease, [Passe] 1069—ab
  postural, relieved by traction of cervical spine, [Davis] 1466—ab
VESICLES: See Seminal Vesicles
VETERANS: See also American Legion
  GI insurance, 1648
  Medical Care: See also Hospitals, veterans
  medical care, A.M.A. report of liaison committee to organizations concerned with 732; 733; (Reference Committee reports) 739; 740
  medical care, A.M.A. resolution on, 838
  medical care, A.M.A. resolution on benefits for, and their dependents, 838
  medical care for nonservice disabilities, (A.M.A. resolution on) 838; 839; (President McCormick's page discusses) 1718
  medical care for non-service-connected disabilities, Dr. Martin's statement before U. S. House Subcommittee, 1342
  medical, National Medical Veterans Society, (meeting) 340
  medical, survey of physicians released from service, (President's page) 1239
VETERANS ADMINISTRATION
  A.M.A. resolution on diminution of medical services by, 838
  federal bills on, A.M.A. attitude on, 1047; 1240
  Hospitals under control of: See Hospitals, veterans
  news, 546; 1357
  reorganization, 1450
  Residencies offered by: See Residents and Residencies
  vacancies for occupational therapists in, 1162
VIENNA
  American Medical Society in, [Kline] 184—C; [Castle] 266—C
VINCENT'S INFECTION
  diagnosis, staining smear for, 656
VIOMYCIN
  treatment of pulmonary tuberculosis, [Pitts] 968—ab
VIRGINIA
  Council on Health and Medical Care, basic placement service activities, (Council article) *552
  medical care for indigent in Richmond, Council report, 268
VIRUS: See also Influenza; Poliomyelitis; Rabies
  Coxsackie: See Coxsackie Disease
  disease differentiated from poliomyelitis, [Grulee] *1587
  disease in pregnancy: their effect on fetus, [Kaye] 85—ab
  disease of skin, milker's nodules, 50—E; [Green] 757—C; [Lane] 1067—C; [Ronchese] 1732—C
  Hepatitis: See Liver Inflammation
  Kentucky, from poliomyelitic spinal cord, [Steigman & others] 1066—C
  multiplication in strain of mammalian cells, [Scherer] 273—ab
  Pneumonia: See Pneumonia, atypical primary
  salivary gland virus, inclusion pneumonitis due to, [Wyatt] 1461—ab
  studies, Rockefeller Foundation expands, N. Y., 339
  verruca vulgaris, 711—E
VISAMMIN: See Khellin
VISCERA: See also under names of specific organs
  aspects of shoulder pain, 1600—ab
VISION: See also Eyes; Ophthalmology
  defects (gross) due to retrolental fibroplasia, [Schlesinger] 1174—ab
  Loss of: See Blindness
  school surveys, 1738
  telescopic lenses developed by Feinbloom to improve, 1292
VISIONS: See Hallucinations
VISUAL INSTRUCTION: See Moving Pictures; Television
VITAL CAPACITY
  in congenital absence of main branch of pulmonary artery, [Steinberg & others] *1216
VITAL STATISTICS
  birth rate among college graduates, 1155
  birth rate, increase, 1952, 1062
  births, marriages, and deaths, Denmark, 1163
  Death Rate: See also Accidents, fatal; Infants, mortality; Life expectancy; Maternity, mortality; under names of specific diseases
  death rate, England and Wales, 71
  death rate less than 10 per 1,000 population, 258
  death rate, overweight and longevity: mortality of all overweight persons, 1084
  death rate, preschool child, London, 1349
  demography, Paris, 868
  suicide rate at record low, 1313—ab

VITAMINS
  antivitamins, which are specific competitive antagonists of, Italy, 1453
  Deficiencies: See under names of specific vitamins as Vitamins C
  elaborating intestinal bacteria, effect of penicillin on, 564
  Foundation grants, 1440
  in vegetable juices, London, 1650
  international symposium on, Italy, 1453
  overdosage, report on, Italy, 1453
  role in antibody production, [Axelrod] 91—ab
  treatment of delirium tremens, [Smith] *384
  treatment of periarteritis nodosa, [Dent] 1733—ab
  treatment of severe malnutrition in children, Mexico, 958
VITAMINS A
  absorption of, disturbed in patient after gastrectomies, Paris, 264
  excessive intake causes congenital anomalies in rats, [Cohlan] 1735—ab
  intoxication in adult, [Bifulco] 1472—ab
  prevention of kidney stones, 1082
  treatment with Prepalin in dermatology, Turkey, 182
VITAMINS B COMPLEX: See also Acid, *p*-aminobenzoic; Acid, folic; Pellagra
  B_1: See Thiamine
  B_2: See Riboflavin
  B_6: See Pyridoxine
  B_{12}: See Cyanocobalamin
  intravenous use, 1184
VITAMINS C: See also Acid, ascorbic; Scurvy
  deficiency and hypovitaminosis, Turkey, 550
  deficiency, effect on healed wounds, 334—E
  to counteract ill-effects of water fluoridation, [McCormick] 1663—ab
VITAMINS K
  antagonistic to bishydroxycoumarin, Italy, 1453
  treatment of bleeding from hypoprothrombinemia [Pratt] *904
VITILIGO
  treatment, extract of ammi majus, [Sidi] 1385—ab
  treatment, 8-methoxypsoralen, [Lerner] 1374—ab
VOCABULARY: See Terminology
VOCATIONAL REHABILITATION: See Rehabilitation
VOICE: See also Speaking; Speech
  adjust pitch to avoid resonance in public speaking, [Schaefer] 354—C
VOLKMANN'S Contracture: See Contracture
VOLTMETER
  to eliminate difference in photoelectrometric hemoglobin level determinations, (reply) [Remer] 108
VOLUNTEERS to Aid Research: See Research
VOLVULUS: See Intestines
VOMITING
  postoperative, preventing after general anesthesia, [Colombo] 1484—ab
VULVA
  eosinophilic granuloma, [McKay] 1378—ab

W

WARF Compound 42: See Warfarin
W.H.O.: See World Health Organization
WAGE EARNERS: See Industrial Health
WANGENSTEEN Surgical Foundation: See Foundations
WAGES: See also Income
  A.M.A. resolution on American Legion commander remarks on "equalization pay," 855
  Tax on: See Tax, income
WAR: See Korean War; Military Medicine
  Heroes: See Korean War, Heroes
  Preparedness for: See Civilian Defense; Medical Preparedness
  Veterans: See Veterans
WARFARIN (Dethmor; Rat-Deth; Ro-Deth; Warf)
  A.M.A. Committee report on names for pesticides, *819
WARTS: See Verruca
  Venereal: See Condyloma acuminatum
WASHING: See also Shampoo
  scrubbing (preoperative); mechanical air drying of hands after, [Walker] 974—ab
WASHINGTON
  University of: See University
WASPS
  desensitization, 104
WATER: See also Baths; Swimming; Washing
  by mouth in postoperative care, unnecessary routine orders, [Harbison] *398
  chlorination, history of, 520—ab
  distilled, warning against intravenous use, 566
  Extracellular: See Fluids, body
  Metabolism: See Dehydration
  metabolism, effects of licorice, [Card] 1383—ab
  pollution, 1450
  retention and phenylbutazone, [Johnston] 75—C
  softened, any danger from? effect on nutritive value on cooked foods, 1498
  supply, arsenic in urine from arsenic in, 1394
  supply, fluoridation exhibit available, Calif., 535
WATER—Continued
  supply, fluoridation, Kansas, 462; 1437
  supply, fluoridation, P. T. A. approves, 251
  supply, fluoridation, vitamin C to counteract ill-effects, [McCormick] 1663—ab
  supply, fluoride analysis, course in, 251; 1648
  supply, fluorosis in Sudan, [Smith] 1179—ab
  supply, pioneer in fluoridation: H. Trendley Dean, retires, 68
  well, on farm, how to reduce excessive fluorides in, 104
WATERHOUSE-FRIDERICHSEN SYNDROME
  adrenal apoplexy during corticotropin therapy of ulcerative colitis, [Wilson & Roth] *230
  recovery, [Bjorklund] 1671—ab
WAVES: See Navy, U. S.
WAX
  in Ears: See Cerumen
WEARING Apparel: See Clothing
WEATHER: See also Climate; Seasons
  swelling of feet in hot weather, 888
WEBER-CHRISTIAN DISEASE: See Panniculitis
WEBER-OSLER-RENDU DISEASE: See Telangiectasia
WEEDS
  control with 2, 4-D, 1144—E
WEIGHT: See Obesity
WEIGHTS AND MEASURES
  use of metric system by A.M.A. and others, 1045—E
WEINSTEIN (Max) Award: See Prizes
WEISS-Mallory *Syndrome*: See Mallory-Weiss Syndrome
WELDING
  electric arc welding, at what distance is it harmful to bystander's eyes? 1083
  extra milk for welders, 776
  respiratory disorders in welders, [Charr] *1520
WELFARE
  Council Activities in Chronic Illness Planning, 1440
  reorganization of Department of Public Health and Welfare, Mexico, 958
  United States Department of Health, Education and Welfare: See United States
WELL Water: See Water
WENNER-Gren Foundation: See Foundations
WERLHOF'S Disease: See Purpura, thrombopenic
WESTERN RESERVE UNIVERSITY
  Gertrude Chandler Tucker Memorial Fund 2 million bequest to, 339
WESTERN STATES
  for Medical Education, A.M.A. resolutions on compact of, 847
WETTING AGENTS: See Detergents
WHEAT: See Bread; Flour
WHEELCHAIR
  new type of "armchair" therapy cart, [Klain] *517
WHIPLASH Injuries: See Neck
WHIPPLE'S DISEASE: See Lipodystrophy
WHIRLPOOL Bath: See Baths
WHISTLING
  noise over temporal area synchronous with heart beat, 774
WHITE BLOOD CELLS: See Leukocytes
WHITE LABORATORIES, INC.
  gift of hormone tablets to India, 860
WHITE-LEE Coagulation Time: See Lee
"WHITE PAPER": See National Health Service, England
WHOOPING COUGH
  immunization procedures, precautions in, [Sauer] *1314
  research on, by public health institute, Mexico, 1359
  treatment, chloramphenicol; aureomycin, London, 1257
  vaccine, aquagen diphtheria and tetanus toxoids with pertussis vaccine, alum precipitated, N.N.R., (U. S. Standard Products) 921
  vaccine, diphtheria and tetanus toxoids with vaccine injection, convulsion in infant after, 1289
  vaccine, pertussis vaccine, U.S.P., N.N.R., (U. S. Standard Products) 333
WIEN (Leonard A.) Award: See Prizes
WILDER, RUSSELL, retires as director of National Institute, 1162
WILLIAMS & WILKINS CO.
  appoint new officers, 947
WIRELESS: See Radio; Television
WISCONSIN
  University of: See University
WOMAN'S AUXILIARY
  New York meeting, 716
  $10,000 gift to American Medical Education Foundation, 855
WOMAN'S HOME COMPANION: See Journals
WOMEN: See also Marriage; Maternity; Menopause; Menstruation; Pregnancy
  in Medicine: See Nurses and Nursing; Physicians, women
  man who wants to appear as a woman: transvestism, [Hamburger & others] *391
    [Wiedeman] 1167—C; [Ostow] 1552—C
  Women's Clubs promote physical examination, 464
WOOD
  flour-soap mixture to remove radioactive soil from hands, [Gregory] 365—ab
  native, dermatitis venenata from, [Weber] 1655—ab
WORCESTER (Mass.) chest x-ray survey, [Scarcello] 960—C
WORDS AND PHRASES: See also Terminology; Medicolegal Abstracts at end of letter M
  grouping of, trick in effective public speaking, [Schaefer] 354—C
WORK: See also Effort; Industrial Health
  Pay for: See Wages
  persistently purposeful, hard work as basis of success, 237—ab
  Therapeutic Use of: See Occupational Therapy
WORKING CONDITIONS: See Industrial Hygiene
WORKMEN: See Industrial Health
WORKMEN'S COMPENSATION: See Industrial Accidents; Medicolegal Abstracts at end of letter M
WORLD CONFERENCE
  on Medical Education (first), 344
WORLD CONGRESS
  on Fertility and Sterility (1st), 341
WORLD FEDERATION
  for Mental Health, 48—E; 1543
WORLD HEALTH ASSEMBLY
  elects president, 540
WORLD HEALTH ORGANIZATION
  A.M.A. *endorsed joint project for medical* help for India, 1045—E
  Belgian Society of International Medical Law, 350
  director-general nominated, 62
  program, China and Nepal to participate in, 861
  publishes epidemic-warning cable code, 1440
  to commemorate Nightingale centennial, 1056
WORLD LEAGUE: See United Nations
WORLD MEDICAL ASSOCIATION
  application for membership, 855
  plastic arts exhibit by physicians, 748
  new headquarters, 947
WOUNDED: See Korean War
  Transport of: See Ambulances
WOUNDS: See also Accidents; Burns; Trauma; under names of specific organs
  disruption, problem, [Schiebel] 1464—ab
  gunshot, use of trypsin intravenously, (report *of case), [Cetrulo] *605*
  healed, vitamin C deficiency effect on, 334—E
  healing, how hydrocortisone affects, [Selye] *1207
  severe *perforating*, of head and neck from lead pipe, [Black & McClintock] *519
  stab, decortication of heart, [Skinner & Farr] *234
  stab, of stomach and intestines, Levin tube passed into, for postoperative decompression, [Gilchrist] *232
  Suture of: See Suture
  War: See Korean War
WRITERS: See under Literature
WRITING: See Books; Book Reviews at end of letter B; Journals; Newspapers; Press
  Contest: See Prizes
  Prescriptions: See Prescriptions
WRYNECK: See Torticollis

X

X-RAYS: See Roentgen Rays
XAID Colostomy Set, 239
XANTHINES
  therapeutic value of diuretic given orally, [Greiner & Gold] *1130
XANTHOTOXIN: See 8-Methoxypsoralen
XERODERMA: See Ichthyosis

Y

YALE
  Center of Alcohol Studies, industrial institute of, Conn., 1152
  fund for psychiatric research, 539
YAOI'S Antirabic Vaccine: See Herpes simplex
YELLOW FEVER
  epidemiology, Colombia, 1063
  relation to prevalence of mosquitoes noted in 1811, [Garb] 757—C
YOUTH: See Adolescence
YUM (headache powder)
  benign ulcer of esophagus with chronic acetanilid poisoning, [Wolfson & Greenberg] *910

Z

ZEIT Lecture: See Lectures
ZENITH Hearing Aid, Model Regent, 821
ZINADON: See Isoniazid
ZINAX: See Zincasate
ZINC
  acetate, N.N.R., (description) 611; (Hynson, Westcott & Dunning) 611
ZINCASATE (Zinax)
  burn dressing, N.N.R., (description) 611; (Hynson, Westcott & Dunning) 611
ZOONOSES
  European seminar on, 465
ZOSTER: See Herpes zoster

AUTHOR INDEX

In this Index are the names of the authors of articles which have appeared in THE JOURNAL, the names of those who have read papers before Societies as published in THE JOURNAL and those whose articles have been abstracted in the Current Medical Literature Department. The * preceding the page reference indicates that the article appeared in full in THE JOURNAL.

For subject index see page 1741.

A

Aas, K., 281
Aavik, O. R., *509, (correction) 1643
Abbott, K. H., *1698
Abildskov, J. A., 1734
Achari, G., 1177
Achroyd, F., 1072
Ackerman, L. V., 354
Ackermann, P. G., 1665
Actis-Dato, A., 1077
Adamson, N. E., Jr., *28
Adderley, D. J., 95
Adlercreutz, E., 1275
Adlersberg, D., 1268
Adorf, A., 283
Agress, H., 275
Albers, D. D., 971, 1561
Albot, G., 1485
Albrecht, R. M., *1423
Alderson, L. R., 1261
Alexander, H. E., *662
Alexander, J. D., Jr., *1302, 1460
Allen, A. C., 87
Allen, E. V., *657
Allen, M. S., 1071
Allen, O. P., 974
Alpert, L. K., *1713
Altschule, M. D., 1735
Amato Neto, V., 1481
Amspacher, W. H., *1309, 1370
Anderson, A. E., 1560
Anderson, L. D., *1427
Anderson, S. G., 769
Andrieux, J., 193
Angelino, P. F., 1077
Angrist, A., *597
Angulo, A. W., 765
Anido, H., 1175
Annis, J. W., *594
Anson, J. H., 1462
Anz, U. E., 1378
Apter, N. S., *1317
Aquilina, J. T., 478
Arany, L. S., *491
Arenas, F., 1658
Armas Cruz, R., 371
Armbruster, E. H., 359
Artner, J., 371
Artz, C. P., *1309, 1370
Ashkenazy, M., 86
Astwood, E. B., *201
Athanasiades, T., 1481
Aufranc, W. H., 870
Aufses, A. H., 1469
de Auster, M. J. T., 98
Avallone, R., 97
Avendaño, O., 1574
Axelrod, A. E., 91

B

Badger, T. L., 1661
Baer, L. J., *908
Baffes, T. G., 971
Bagnall, A. W., 767
Bahnson, H. T., 1378
Bakst, H., 1461
Bailey, C. P., 765
Bailey, R. W., *792
Baker, B. M., Jr., 478
Balla, G. A., *212
Ballanger, 1276
Bancroft, H., 1665
Bancroft-Livingston, G., 480
Bang, H. O., 1075, 1075
Banks, H. H., 276
Barach, A. L., 763
Barberio, J. R., 86, (correction) 252
Barbero, G. J., 760
Barbosa, J. deC., *1103
Barclay, W. R., (correction) 1058
Bardelli, S., 1487
Barford, L. J., 1177
Barkan, O., 1462
Barmeyer, G. H., 1261
Barnett, L. A., 1074
Barns, T., 1482
Barondess, J. A., *690
Barrett, T. F., *1414
Barris, W., 1656
Bartels, E. C., 89
Bartholomew, L. E., 763
Bartlett, G. R., *1033
Bartlett, R. W., 1067
Bartrina, L., 286
Bashe, W. J., Jr., *690
Bass, L. W., 1567
Bassett, A., 978
Bastenie, P. A., 1573
Bastié, J., 1486
Bastrup-Madsen, P., 288
Bateman, J. C., 86, (correction) 252, 1170
Bates, R. W., 1372
Batterman, R. C., *1013
Battey, L. L., *6
Battezzati, M., 369
Bauer, F. K., *1414
Bauer, J., 961
Bauer, L. H., *458, *722
Bauer, T. J., *300
Baumgartner, L., *1506
Baylin, G. J., 649
Beaconsfield, P., 1265, 1265
Beadenkopf, W. G., *1423
Beamer, P. R., 1375
Bean, W. B., *1293
Beard, A. W., 1479
Beattie, J. L., *216
Bech, V., 1672
Bechtold, J. E., 1567
Beck, J. C., *201
Beck, J. W., 274
Becker, B. J. P., 968
Becker, F. T., 478
Becker, W. H., 283
Bedrine, H., 1277
Beebe, R. T., *206
Beerman, H., *308
Begg, N. C., 977
Behrmann, V. G., *1116
Bekaert, J., 1177
Bell, J. A., 362
Benedict, W. H., 479
Bénichoux, R., 193
Bennett, J. H., *1606
Bennett, L. L., 1437
Bennett, W. A., *1509
Bentinck, R. C., 1467
Berenberg, W., 1471
Berg, A., 281
Berg, G., 1276
Berg, K., 770
tenBerge, B. S., 370
Berger, A. J., *1132
Berglin, T., 281
Berk, J. E., *1, (correction) 465
Berke, M., 474
Berkman, S., 1167
Berkowitz, J., 1563
Berkowitz, S., 966
Berlin, L., *794
Berman, H., 1370
Bernard, J., 978
Bernard, N., 1485
Bernatz, P. E., *379
Bernstein, A., 361
Berry, C. H., *1227
Berthrong, M., 479
Bertola, A., 285
Bertrand, J., 653
Bethard, W. F., *1018
Betke, K., 1379
Betts, R. H., 1670
Beyer, J., *1090
Bickerman, H. A., 763
Bickford, B. J., 194
Biegeleisen, H. I., 1563
Bierman, H. R., 1377, 1468
Bifulco, E., 1554, 1472
Billings, A., *1198 (correction) 1543
Binder, M. J., 1066
Biorck, G., 875
Bird, R. B., 1666
Birdsong, M., *700
Birkhäuser, H., 1079
Bisteni, A., 1171
Bittner, J. B., 94
Bjerre, B., 481
Björklund, S. I., 1671
Black, B. M., 89
Black, F. R., *519
Blakemore, W. S., 871
Blandford, S. E., Jr., 279
Blegen, H. M., 1261
Bieler, W., 480
Bloch, H., *131
Block, M., *1018
Blomquist, O. A., *305
Blood, A., *139
Bloomer, W. E., 1657
Blum, E., 283
Blunt, J. W., 191
Blustein, H., 1471
Blystad, A., 97
Boccoleri, C. A., 1476
Bock, F. G., 1565
Bockus, H. L., *1228
Boeminghaus, H., 981
Bohrod, M. G., *33
Bond, W. H., 1371, 1655
Bonica, J. J., 972
Bonnal, J., 1486
Bookman, J. J., 1268
Boothby, W. M., *1000
Borda, J. M., 286
Borel, J. C., 1378
Borgström, S., 1669
Borsoni, G., 1574
Borst, J. G. G., 1383
Bosher, L. H., Jr., 280
Bourgeois-Gavardin, J., 1385
Bowen, L. G., *693
Bower, B. D., 1570
Bowers, V. M., Jr., 85
Brackett, C. E., Jr., 1271
Brackney, E. L. 1565
Bradess, V. A., 559
Bradley, J. E., 1272
Branson, E. C., 1471
Bratlund, H., 981
Braude, A. I., 1274
Breese, B. B., *10
Breinin, G. M., 698
Bremner, A. E., 1478
Brennan, B. B., 1666
Breton, A., 561
Brewer, J. I., 278
Briggs, J. N., 766
Brock, H. J., *1030
Broders, A. C., 971
Brøchner-Mortensen, K., 981
Brogly, G., 1280
Brooks, J. R., 1072
Brown, C., Jr., *206
Brown, E. S., *212
Brown, I. W., Jr., 1264
Brown, J. B., 1073
Brown, P. F., 762
Brown, R. A. P., 1478
Brown, R. K., 189
Browne, D. C., 1567
Bruce, R. A., 1173
Brucer, M., 479
Brueckner, A. L., 190
Brun, C., 1575
Bryce-Smith, R., 477
Brygoo, P., 99
Buchanan, J. R. G., 94
Bucht, H., 1382
Budowsky, J., 1270
Buechner, H. A., 1560
Bülow, K., 1575
Bürger, M., 1277
Bullington, R. H., 1734
Burgess, A. M., 1260
Burkinshaw, J., 1277
Burman, R. G., 277
Burnett, L., *1225
Buschkens, J. P., 977
Busse, H., 1379
Butcher, R. W., 1562
Byars, L. T., 354

C

Cabasso, V. J., *1527
Cagan, R. N., 628
Cahen, J., 1570
Calenda, D. G., *607
Callens, J., 97
Calligari, G., 1484
Calloway, N. O., *777
Cameron, C. S., 870
Campbell, E. J. M., 1670
Candiani, G. B., 287
Cannemeyer, W., *606
Capute, A. J., *1432
Carabasi, R., *139
Card, W. I., 1383
Carnes, W. H., 873
Caroli, J., 653
Carr, C. R., 276
Carswell, A. S., 1559
Case, R. B., *208
Cassady, J. V., 966
Castle, C. H., 266
Catchpole, H. R., 88
Cateigne, G., 99
Cathie, I. A. B., 1380
Cavallini-Francolini, C., 1078
Cazal, P., 980
Cazort, A. G., 1733
Cetrulo, G. I., *605
Chalmers, J. A., 1571
Chalnot, P., 193
Chandler, F. A., *901
Chapman, D. W., 86, 358, 1176
Charr, R., *1520
Chassin, J. L., *134
Chatgidakis, C. B., 968
Chaves, A. D., 1661
Cheng, T. O., *1531
Chesley, L. C., 278
Chilton, N. W., 1270
Chinn, A. B., *905
Chor, H., 1471
Choremis, K., 1481
Christensen, P. E., 1075, 1075
Chu, J., 1668
Cibert, J., 1077
Clagett, O. T., *379, *1185
Clark, E. J., 1265 (correction) 1724
Clarke, B. E., 1733
Clarke, B. G., *521
Clément, R., 193, 1573
Cleve, E. A., *573
Cloetens, W., 766
Cloutier, W. A., *812
Cloward, R. B., 1272
Cohen, A., *402
Cohen, M. R., *1042
Cohen, S. H., 1469
Cohlan, S. Q., 1735
Colbeck, J. C., 767
Colburn, C. G., 1560
Cole, D. P., *1428
Cole, F., 1273
Cole, H. N., Jr., 187
Colillas, R., 98
Collins, D. H., 652
Collins, V. J., 871
Colombo, O., 1484
Colp, R., Jr., 1564
Conkling, R. W., 279
Conley, C. L., 479
Conley, J. J., 360
Conlin, G. J., Jr., 1272
Consolazio, C. F., 1468
Conway, H., *666
Cook, C. D., 1471
Cooke, F. N., 190
Cooke, J. V., *1028
Cooke, W. T., 768
Cooley, D. A., 86, *673
Cooper, E., *402
Copel, J. W., 883
Corcoran, A. C., *493
Corcos, V., 1574
Corday, E., 1656
Cordice, J. W. V., Jr., 970
Coriell, G. L. L., 1662
Cornfield, J., 1072
Cornman, I., 1170
Corriol, J., 1486
Coulter, R. L., 768
Courjon, J., 1483
Couter, W. T., *1704
Couvreur, J., 193
Craig, R. L., 1470
Crampton, J. H., 275
Crawley, J. W., 86
Creech, B., 1464
Creeden, F. V., 1660
Crehan, J. P., 1661
Crile, G., Jr., 1568, 1664
Crivellari, C. A., 98
Cromer, J. K., 86, (correction) 252
Crosby, E. L., *825
Cruickshank, G., 94
Cugell, D. W., 1661
Cummins, C., 1478
da Cunha, F. C., *1103
Curphey, T. J., 1564
Currie, J. P., 1478
Currie, R. W., *1230
Cutler, J. W., *1096
Cutts, F. B., *607

D

D'Abreu, A. L., 1570
Dahl, L. K., 969
Dahl-Iversen, E., *391
Dalgaard, O. Z., 652
Damasco, A., 1481
Dameshek, W., 1735
Damiens, G., 1487
Dana, R., 1574
Danforth, D. N., 85
Dangl, F., 1180
Darget, 1276
Daro, A. F., 558
Daum, K., 1467
Dausset, J., 1487
David, P., 285
Davis, D., 1466
Davis, F. W., Jr., 478
Davis, H. S., 477
Davis, J. G., 1377
Davis, J. H., *1309, 1370
Davis, W. B., 1477
Day, W. C., 190
Deane, G. E., 1272
Dearing, W. H., 1073
De Bakey, M. E., 86, *673
DeBoer, A., 191
DeCamp, P. T., 971
DeForest, R. E., 275
Deichmann, W. B., *506
Delafontaine, P., 1487
Delannoy, E., 285
DeMaria, W. J. A., 1174
De Mey, D., 766
Deming, C. L., *521
Demolder, H., 97
Denk, W., 100
Dennison, W. M., 368
Denny, F. W., 189
Dent, J. H., 1733
Denton, C. R., 1374
Dérot, M., 978
Derus, G. J., *1113
Desbuquois, G., 1574
Destefanis, E., 1179
De Takats, G., 871
Deterling, R. A., Jr., 191
Deuchar, D., 367
Dewar, H. A., 1482
Diamond, H. E., 1465
Diaz, A. R., 1175
Dickinson, F. G., *1365
Dickinson, P. H., *901
Diding, N., 1384
Dighiero, J. C., 95
Dillaha, C. J., *509, (correction) 1643
Dockerty, M. B., *808
Dörken, H., 1282
Dörken, H., Jr., 1070
Doerner, A. A., *15, 1460
Dohan, F. C., 1378
Dole, V. P., 969
Doniach, D., 1483
Donzelot, E., 1076, 1571
Dortenmann, S., 1480
Dotter, C. T., *1216
Douglas, D. M., 96
Doyle, J. B., 480
Drachman, S. R., 1268
Dragsted, P. J., 1475
Drake, M. E., *690
Draper, J. W., 1667
Dreiling, D. A., Sr., 1472
Drey, N. W., 275
Dreyer, V., 288
Dubost, C., 1571
Duffy, J. J., 1067
Dunham, H. H., 1071
Dunning, H. S., *321
Dunphy, J. E., 1072
Durand, M., 284
Dustan, H. P., *493
DuVries, H. L., *1202
Dye, W. S., *399
Dyer, I., 277
Dyke, R. W., 1655
Dysart, D. N., *1332

E

Early, L., *206
Eastwood, D. W., *212, 1067
Ebaugh, F. G., *801
Eben, D. J., 1569
Ebert, R. H., (correction) 1058

Eckenhoff, J. E., 1556
Edwards, F. R., 195
Edwards, J. E., 760
Egas Moniz, 1483
Ehni, G., 475
Einaudi, G., 192
Eisenberg, G. M., *1302, 1460
Eisenhammer, S., 1387
Elam, J. O., *212
Elsässer, G., 1276
Emblem, L., 370
Emmons, C. W., 973
Engberg, J., 481
Engelberg, H., 474
Engelsher, D. L., 355
Enos, W. F., *1090
Erdman, G. L., *1227
Erickson, J. G., *1695
Erlsbacher, O., 195
Ersley, A., 87
Escalle, J.-E., 1076
Escande, C. A., 1476
Eskridge, M., 1175
Esplen, J. R., 194
Esquivel, R., 286
Essellier, A. F., 1386
Essig, L. L., 1266
Estes, J. E., Jr., *808
Etévé, J., 653
Evans, M., 1461
Evans, W. W., 1462

F

Falconer, M. A., 366
Falls, F. H., 1266
Falls, H. F., 1558
Faloon, W. W., 1469
Farga, C. V., 371
Farr, K. F., *234
Fauconnier, B., 99, 99
Faust, C., 1178
Fay, T., *1623
Fazekas, J. F., 628
Fedtke, H., 976
Feinberg, A. R., *114 (correction) 344
Feinberg, S. M., *114, (correction) 344
Feinstein, R. R., *1631
Feld, M., 1386
Feldman, H., 1475
Feldthusen, U., 481
Felmus, L. B., 1473
Felton, J. S., 1261
Ferebee, S. H., 1464
Ferguson, L. K., *1228
Fernandez, A., 1486
Feroldi, J., 371
Findlay, G. M., 771
Finegold, S., 1169
Finkelman, I., 1471
Finland, M., 190, 760
Firenze, A., 874
Fischer, F., 981
Fischer, R., 1732
Fisher, J. H., 761
Fisher, M. M., 628
Fitts, W. T., Jr., *1427
Fitzpatrick, M. J., *886, 968
Fitzpatrick, T. B., *577, 1374
Flensborg, E. W., 1282
Fleuriot, Y., 1487
Flippin, H. F., 763, *1302, 1460
Foley, T. J., 278
Folle, L. E., 1476
Forbes, A. P., 361
Ford, R. V., *1121, 1375
Foret, J., 1278
Fortner, H. C., *1526
Fourman, P., 876
Fouts, P. J., 1655
Fowler, N. O., Jr., 1169
Fox, M. J., 1273, 1459
Franckson, J. R. M., 1573
Frank, N. R., 1661
Frank, O., 1180
Frank, W. P., 757
Franklin, W., 1270
Frederickson, L. E., 1659
Freeman, W., *487
Freis, E. D., 763
Freund, H., 77
Friedell, M. T., *897
Frisch, F., 1462
Frisk, A. R., 1384
Fritel, D., 978
Fruhling, L., 283
Frumess, G. M., *1417
Frumin, A. M., *914
Fryer, M. P., 1073
Fujii, T., 1371
Fuller, C. J., 1387
Fulton, R. M., 979
Fusillo, M. H., 87

G

Gade; M., 981
Gädeke, R., 1379
Gaensler, E. A., 1661
Gagnon, E.-D., 285
Galagan, D. J., 1566
Galante, E., 98
Galgano, A. R., *518
Galluzzi, N. J., *15
Gambill, E. E., 649
Gamble, C. J., *1037
Gandolfo Herrera, R., 770
Garb, S., 757
Garcia, F. A., 279
Garcïa, Díaz, S. J., 1277
García Güelfi, R., 1476
Gardiner, H. G., 967
Gardner, E., 975
Garello, L., 98
Garland, L. H., 75
Garrido Lecca, G., *913
Garrison, R. F., *317
Garton, R. I., 76
Garvey, J. L., 363
Gauchat, R. D., 1270
Gauld, W. R., 1076
Gautier, P., 285
Gavosto, F., 370
Gay, J. R., *1698
Gebhard, B., 1732
Geckler, G. D., *1335
Gelfand, M. L., *319
Gellhorn, A., 1171
George, J. T. A., 1479
George, R. S., 357
Geppert, T. V., *381
Gerbeaux, J., 193
Gerrard, J. W., 1570
Gershon-Cohen, J., *676
Getzoff, P., *1431
Ghosal, S. C., 283
Giaja, J., 652
Gialloretto, O., 285
Gianturco, C., 1566
Gibson, T., 1477
Gilbert, N. C., 871
Gilchrist, R. K., *232
Gille, P., 193
Gilmore, C. E., 760
Girdany, B. R., 1567
Glover, R. P., 90
Gochenour, W. S., Jr., 1660
Goehring, W. O., *1429
Götzen, F. J., 981
Gold, H., *1198, (correction) 1543
Gold, Harry, *1130
Golden, A., 763
Goldenberg, C., *781
Goldman, L., *1428
Goldmann, M. A., 558
Gollin, H., 558
Good, C. A., *1185
Goodman, H. C., 1671
Goodman, J. I., *1336
Goodman, M. B., *1423
Gootnick, A., 1171
Gorenberg, H., 278
Gormsen, H., 1575
Gorthey, R., 1273
Gosfield, E., Jr., *40
Gottlieb, A. M., *908
Gottlieb, J. S., 1370
Gough, L. K., *852
Govan, A. D. T., 1278
Grady, E. D., 762
Graef, I., 1260
Graham, J. B., 975
Graham, L. S., 88
Grange, R. V., 1670
Grant, I. W. B., 1572
Grant, J. J., *1429
Graves, H. L., 1662
Gray, H. H., 1665
Green, J. H., 1670
Green, M. T., 757
Green, T. W., *236, 479
Green, W. T., 276
Greenberg, M. W., *910
Greene, B. A., 966
Greene, H., 1559
Greene, R. C., *133
Greenhill, J. P., 961
Greenlee, R. G., *1322
Gregg, A., *962
Gregory, J., 365
Greiner, T., *1130
Grice, P. M., 1170
Grier, G. W., 1567
Grieve, S., 980
Griffiths, J. T., Jr., 1071
Griffon, J. P., 277
Grimsson, H., *814
Grinschpun, S., 979
Grist, N. R., 368
Gross, H., 1672
Gross, S., *813
Grossi, L., 98
Grossman, M. I., 1468
Grove-Rasmussen, M., 92
Grow, J. B., *1614
Grünewald, H.-W., 1276
Grulee, C. G., Jr., *1587
Guallar Segarra, J., 287
Guest, C. M., *206
Guiard, E., 1280
Guidotti, F. P., *788
Guiot, G., 1574
Gulotta, G. A., 1069
Gundrum, L. K., 273
Guthkelch, A. N., 282
Gutmann, M. J., 1572

H

Hackel, D. B., 1265
Hackethal, K. H., 1476
Hård, G., 1384
Hävermark, N. G., 1475
Haggart, G. E., *883
Hahn, E. O., 189
Hahn, P. F., 474
Haight, T. H., 760
Haines, G., 1557
Hale, W. M., 1668
Hall, W. H., 1169
Hallman, B. L., *322
Halperin, P. H., *1219
Hamburger, C., *391
Hamilton, M., 95
Handford, S. W., *212
Hanfling, S. L., 1563
Hankiewicz, J., 979
Hanner, J. M., 1469
Hansen, J. L., 288
Harbison, S. P., *396
Hardin, H. F., 1264
Hardy, J. D., 1378
Hare, H. F., 1462
Hare, R. A., 1375
Harkins, H. N., 1557
Harley, R. D., 1460
Harper, D. M., 873
Harrington, W. J., 1169
Harris, A. S., 1171
Harris, H. A., 1179
Harris, J. S., 1174
Harris, J. S. C., 90
Harris, M. W., *400
Harris, P. A., 1734
Harte, M. S., 1469
Hartman, F. W., *1116
Hatcher, M. B., *582
Hattersley, P. G., *1223
Haubrich, R., 1480
Havener, W. H., 1558
Haworth, J. C., 1570, 1572
Haxthausen, H., 481
Haxton, H. A., 1278
Hayden, M., 1571
Hazard, R., 1078
Heatley, J., 1658
Heck, W. E., 1662
Hegstrom, G. J., *1617
Heilman, F. R., 1073
Heim de Balsac, R., 1571
Heinrich, W., 99
Held, A. T., *1704
Heldrich, F. J., Jr., 1272
Helwig, E. B., 873
Hench, P. S., *119
Henle, C., 764
Henle, G., *690
Henle, W., 690
Henry, R. J., 1166
Hepp, L. C., *894
Hermel, M. B., *676
Herrell, W. E., *1601
Herrick, J. F., 275
Heyer, H. E., 1656
Heyman, A., *6
Hidalgo, J., *1431
Higgins, C. C., 359
Higgins, J. W., *109
Higgins, T. F., 763
Higgins, W. H., Jr., 1176
High, R. H., 1560
Hightower, J. A., 1660
Hightower, N. C., Jr., 649
Hilden, T., 1575
Hill, J. H., 1562
Hill, L. M., 970
Hillman, J. W., 276
Hilsabeck, J. R., 279
Hinglais, H., 288
Hinglais, M., 288
Hinton, J. W., *500, 1269
Hirsch, J., 97
Hoagland, R. J., *1527
Hoback, W. W., *236
Hobby, O. C., *740
Hodges, H. W., *513
Hoekelman, R. A., 187
Hoff, E. C., *1597
Hoffbauer, H., 367
Hohf, R. P., *399
Holinger, P. H., 1072
Hollenhorst, R. W., 479
Holler, G., 195
Holley, W. J., 761
Holm-Nielsen, P., 1669
Holmberg, G., 1384
Holmes, G. W., 1470
*Holmes, R. H., *1090*
ten Holt, S. P., 1383
Holten, C., 981
Hood, R. T., Jr., *1185
Hoogendoorn, D., 96
Horne, G. O., 94
Horrigan, R. V., 1373
Horstmann, D. M., 1565
Horvath, S. M., 1467
Hosford, G. N., (correction) 748
Hosler, R. M., 1556
Houlne, P., 1277
Houser, H. B., 1265 (correction) 1724
Houston, J. C., 1481
Howdon, W. M., 360
Howe, F. S., 1261
Huebner, R. J., 362
Huang, N. N., 1560
Huber, H., 1672
Hudson, B., 1671
Hughes, C. W., 190
Hummeler, K., 362
Humphreys, G. H., 1474
Hunt, A. D., 1662
Hunt, M. L., 1468
Hunter, D., 1380
Hurst, J. W., *322, 763
Huss, G., 559
Hutchinson, D. L., 1565
Hutchinson, W. B., 1556
Hyde, R. W., 274

I

Ibarra, G. B., 1658
Ijdens, J. W., 1571
Ilavsky, J., 1373
Imburgia, R., 478
Impallomeni, G., 192
Ingelfinger, F. J., 1269
Ingleby, H., *676
Ingraham, F. D., *387
Innerfield, I., *597
Innes, J., 1076
Israel, H. L., *40

J

Jackson, A., 559
Jackson, H. F., 1733
Jacobson, L. O., *1018
Jaffé, B., 89
Jahnke, E. J., 190
Jahraus, R. C., *1531
Jakob, F., 979
James, A., 768
Jameson-Evans, P., 768
Janes, J. M., 275
Janton, O. H., 90
January, H. L., *1000
Jarrett, S. R., *1414
Jason, R. S., 873
Jelinek, R., 1387
Jenkins, A. R., 1482
Jenney, E. H., *1317
Jepsen, O., 1489
Jervis, G. A., 974
Jessar, R. A., 1465
Jillson, O. F., 187
Johnson, A. A., 1564
Johnson, F. R., 191
Johnson, H. D., 369
Johnson, I., 1369
Johnson, I. M., 1176
Johnson, R. W., Jr., 276
Johnston, J. M., 75
Johnston, T. G., 1733
Jolly, D. H., 1557
Jonas, R., 1672
Jones, G. P., 1488
Jones, R., Jr., *308
Jordan, P., Jr., *908
Joseph, H. L., 1067
Joseph, S., *38
Joske, R. A., 1383
Juch, E., 560
Julian, O. C., *399
Juster, E., 1280

K

Kahler, J. E., 1170
Kahn, R. L., *1204
Kaiser, E., 979
Kanar, E. A., 1557
Kane, I. J., 1269
Kane, W. M., 1657
Kaplan, B. M., *1198, (correction) 1543
Kaplan, L. I., *1505
Kaplan, S. M., *109
Karsner, H. T., 355
Kass, I., 559
Katlan, N. R., 1732
Katz, L. B., 357
Katz, L. N., *1198, (correction) 1543
Katz, S., 760
Kaufman, M., (correction) 465
Kaufman, R. H., 558
Kaufmann, H., 1076
Kaye, B. M., 85, *1042
Kazmann, H. A., 1074
Keating, F. R., Jr., *1509
Keefer, C. S., *1397
Kehoe, R. A., 1262
Keidan, S. E., 1570
Keil, P. G., *1617
Keizer, D. P. R., 1484
Kelley, R. A., *700
Kelley, R. T., 763
Kelsey, J. R., Jr., 760
Kenin, A., *131
Kennedy, B. J., *1135
Kent, B., *1219
Kenwell, H. N., 280
Kern, C. E., *703
Khalili, 1280
Kheim, T., 1665
Killam, K. F., *1317
King, B. R., 479
Kinney, C. E., 1374
Kirchoff, H., 191
Kirk, R., 1179
Kirman, B. H., 1277
Kirsner, J. B., 649
Klaila, A., 1177
Klain, B. V., *517
Kligman, A. M., 1565
Kline, M. A., 184
Klopp, C. T., 86, (correcti 252
Knopf, S. N., 1563
Knox, F. H., Jr., 1171
Knox, W. G., 1660
König, F. E., 194
Koffler, A., *28
Kogel, M. D., 266
Kokko, U. P., 1067
Kolb, L. C., *1085
Koller, A., 371
Koller, F., 99
Koontz, A. R., 1557
Kopecek, F., 195
Koppanyi, T., 628
Koprowski, H., 974
Korner, B., 981
Korns, R. F., *1423
Koskoff, Y. D., *37
Kotin, P., 1170
Kountz, W. B., 1665
Kovacsevich, R., 195
Krainin, P., *31
Kral, V. A., 1070
Krall, L. P., *1322
Kramer, P., 1269
Kranemann, J., 1476
Krantz, S., 762
Kraus, H., 760
Kravetz, H., 1667
Kravis, L. P., 362
Kronfeld, P. C., 1658
Krumbach, R. W., 1376
Krusen, F. H., 275
Kubik, M. M., 1571
Kucher, R., 1180
Kübler, E., 1480
Kümmerle, F., 1381
Küntscher, G., 1075
Kuhl, W. J., Jr., 1468
Kuhns, D. M., 87
Kuipers, F., 1179
Kulhia, Y., 551
Kunlin, J., 1265
Kunz, H. W., 90
Kupperman, H. S., 361
Kushlan, S. D., *221
Kutscher, A. H., 1270
Kuzma, J. F., 1459
Kyser, F. A., 559

L

Labò, G., 769
Lachnit, V., 1180
Lafitte, A., 1078
Lahey, F. H., *853
Lamb, W. M., 1659
Lambert, E. C., 1174
Lamont-Havers, R. W., 146
Lamson, G. G., Jr., 1566
Landes, R. R., *514
Lane, C. G., 1067
Lane, S. L., 1270
Langendorff, H., 1488
Lanman, J. T., 363
Lapides, J., *1305
Larrieu, M.-J., 1385
Larson, E., 1070
Lassen, H. C. A., 286
Lasser, R. P., *1133
Lathrop, F. D., *19
Laubach, J. L., *404
Lawrence, S. H., *1526
Lawson, H. A., 1274
Leard, S. E., 1270
LeBozec, J.-M., 1076
Lecasble, R., 1386
Lecks, H. I., 362
Lee, J. G., 762
Lee, S. S., 364
Leedham, C. L., 760
Leeds, S. E., *1409
Leeming, F. C., 77
Leff, W., 1563
Leger, L., 193
Legerton, C. W., Jr., 6
Leggat, P. O., 1488
Legrain, M., 91
Lemmerz, A. H., 1476
Lennox, W. G., 1474, *169
Lenti, G., 370
Lenzi, G., 769
Leopold, I. H., 1462
Leriche, R., 1077
Lerner, A. B., *577, 1374
LeRoy, G. V., (correction) 1058
LeVay, D., 961
Levi, V., 1077

Levin, E., 649
Levin, L., *1000
Levinson, A., *781
Levites, M. M., *682
Levy, E. D., *129
Levy, R. L., 355
Lewis, D. L., 1479
Lewis, F. S., 1565
Lian, C., 770, 1280
Libby, R. L., *1414
Liberson, M., *1010
Lichtenstein, M. R., *606
Liddle, G. W., 1467
Likoff, W., *1335
Linden, I. H., 1373
Lindsay, D. R., 1566
Lintzel, W., 1076
Lipscomb, W. R., *590
Lister, A., 1380
Livesay, W. R., 358
Li Voti, P., 1736
Lloyd-Roberts, G., 281
Locke, F. B., *1423
Locke, W., *139
Lodigiani, E., 1078
Loeffler, R. K., 1461
Loewenthal, L. J. A., 475
London, P. S., 767
Long, R. S., *1619
Long, W., *25
Lorenz, F., 195
Lorenz, T. H., *1113
Lorincz, A. L., *509 (correction) 1643
Lovell, R. R. H., 1671
Lowell, F. C., 1270
Lubic, L. G., *37
Lubin, R. I., *137
Lucia, S. P., 1468
Ludwig, B. L., 360
Lüscher, W., 1386
Lukas, D. S., *1216
Lull, G. F., 54, 168, 169
Lumbroso, 1280
Lundy, J. S., *805, 1376
Lunenfeld, B., 98
Lurie, I., 1475
Lust, M., 1281
Lycett, C. D. L., 1479
Lynch, J. S., 189
Lynch, W. J., 1662
Lynn, R. R., 1265
Lyons, J. B., 1382

M

McAfee, J. C., *1004
McAleese, J. J., *62
McAllister, R. M. 1662
McAndrew, M. J. [illegible]
McArthur, J. W., 1471
MacArthur, P., 95
MacAusland, W. R., 188
McCaffrey, I., 1174
McCance, R. A., 560
McCarroll, H. R., *297
McCarthy, K., 1570
McClintock, J. K., Jr., *519
McCluskey, H. B., *232
McCollum, R. W., 1565
McCormick, E. J., *485, *726, *824, *1239, *1718
McCormick, W. J., 1663
McCorriston, C. C., 1270
McCoy, J. H., 1076
McCroan, J. E., Jr., 1559
McCue, C. C., 280
McCullagh, E. P., *1031
McDonald, J. R., *1185
MacFarlane, J. C. W., 1380
MacFee, W. F., 189
McGeachy, T. E., 1657
McGee, H. B., 1558
McGlone, F. B., *567
McGovern, J. J., 973
MacGregor, J. B., *28
McHardy, G., 1567
McIntyre, P. A., 967
McKay, D. G., 1378
McKay, R. J., Jr., *387
Mac Keith, R., 93
McKeown, T., 1477
McLaughlin, J. J., 1466
Macleod, J. G., 1572
McLorinan, H., 769
MacMahon, B., 1477
McManus, R. G., 1170
MacQuigg, R. E., *1000
McVay, L. V., Jr., *1622
Mafia del Castillo, C. M., 1282
Magee, K. R., 1173
Magnin, G. E., 364
Maier, H. C., *1221
Mainella, F. S., 1370
Mainzer, F., 194
Major, J. W., 92
Malitz, S., *1329
Malkinson, F. D., *404
Mallet-Guy, P., 371
Maloney, J. V., Jr., *212
Mann, J., *1333, (correction) 1643
Manowitz, B., 1373
1058
Manthei, R. W., (correction)
Mantz, F. A., Jr., 1272
Maquinay, C., 1278
Marck, A., *318
Maretić, Z., *609
Margolies, M. P., 874
Marinacci, A. A., 1268
Marinoni, R., 1381
Marjey, E. J., 358
Markham, C. H., *1690
Markham, J. D., *1597
Marks, V., *1423
Marlow, A. A., *1033
Marmion, B. P., 1076
Marnane, J. P., 1472
Marquardsen, J., 1489
Marsh, K., *26
Marshall, W. H., *1317
Martin, D., *1626
Martin, E. A., 1479
Martin, W. B., *856
Martin, W. J., *1601
Martínez Zuviría, E., 1282
Marzo, R., 1379
Mas Quiles, E., 287
Maske, O., 97
Mason, A. A., 282
Mason, D., *1335
Mason, J. H., 1736
Massone, G., 769, 1484
Masters, W. H., 1659
Matheson, W. J., 94
Mathisen, W., 281
Matlin, E., 1167
Matson, D. D., *387
Matteucci, W. V., 763
Mattingly, T. W., *1329
Maxwell, H. W., 1176
May, C. D., 1270
May, P. R. A., *801
Mayer, G., 369
Mayock, R. L., *308
Mears, T. W., *997
Melamed, A., *318
Melcher, G. W., Jr., 703
Meleney, F. L., 1074
Mellinger, G. W., 275
Mendeloff, A. I., *798
Mendelowitz, S. M., 558
Mendelsohn, H. R., *705
Merindino, K. A., 1173
Merrill, J. P., 91
Merz, W. R., 1672
Messmer, E., 1671
Meyer, 1276
Meyer, J., *1431
Meyer, L., 284
Meyer, O. O., 364
Miadonna, V., 97
Michaels, L., 1482
Michon, P., 97
Migliorini, G., 98
Millard, J. B., 766
Millard, L., 1573
Miller, A. J., *1198, (correction) 1543
Miller, E. R., 1377
Miller, F. L., 886
Miller, G. A., 1566
Miller, G. F., *377
Miller, H. S., 1554
Miller, J. M., 184
Miller, S. I., *1121, 1375
Milliez, P., 978
Millikan, C. H., *1711
Mills, S. D., 1376
Milner, W. A., 1667
Minnich, V., 1169
Minor, A. H., *1225
Miralbell-Andreu, E., 1486
Mitchell, R. S., 1463, 1464
Mitchell, W., 1383
Møller, K. O., 288
Moersch, H. J., *997
Molhuysen, J. A., 1383
Monfardini, R., 1487
Montag, C., 480
Montagu, J. D., 284
Montgomery, C. E., 1071
Montgomery, W. F., *225
Montoreano, F., 1279
Moore, G. E., 1565
Moore, R. L., 1474
Mopper, C., *570
Moran, C. F., *114, (correction) 344
Moran, T. J., 1369
Morandi, L., 1386
Morgan, H. S., 1273
Morgan, J. K., 1178
Moriarty, J. D., 650
Morris, G. E., *1218
Morris, Leslie E., *37
Morris, Lucien E., 1370
deMorsier, G., 1475
Mortier, G., 1177
Moser, M., *1329
Moses, C., 357
Moskowitz, E., *1505
Motulsky, A. G., *504
Mount, F. W., 1464
Mowrey, F. H., *777
Moyer, J. H., *1121, 1369, 1375, 1459
Müller, E., 365
Müller, G., 970
Mukopadhaya, B., 1177
Munck, J. P., 1489
Murphy, J. F., 1667
Murphy, W. P., Jr., *1421
Musser, M. J., *1113
Myerson, M. C., *17

N

Nassberg, S., 1473
Nathanson, I. T., *1135
Nechtow, M. J., *1679
Neerken, A. J., *1614
Neiman, J. H., *141
Neligan, G. A., 1478
Nelsen, D. J., 974
Nelson, W. G., 1652
Newey, J. A., *137
Newland, D. E., *1515
Ney, C. 1564
Nichols, D. R., *1601
Nicholson, M. J., 1661
Nicolaj, P., 1279
Nlemineva, K., 1075
Nikishin, I. F., 1473
Nørholm-Pedersen, A., 1575
Nolan, J. J., 762
Nolan, L. E., *1223
Noll, J. W., 1469
Nordenson, N. G., 1475
Norman, D. D., *608
Norton, T. W., 974
Notes, B., 1732
Nugent, F. W., 767
Nugent, T. E., 767
Nussbaum, H. E., 1563
Nuzum, J. W., Jr., 1377

O

Obrador, S., 90
Ochsner, A., 971
O'Dell, E. T., 968
O'Hare, J. M., 1660
O'Leary, P. A., *1695
Olesen, V., 1079
Olfelt, P. C., 1376
Olive, J. T., Jr., 1376
Oliver, J. B., 1456
Olivier, C., 1485
Olmsted, W. H., 275
Olnick, H. M., *582
Olsen, H. C., 1475
Olson, G. W., 1561
O'Malley, J. F. 1172
O'Neil, F. B., 767
O'Neill, T. J. E., 90
Orozco, R., 1574
Orr, I. M., 369
Osborne, J. A., 1671
Osgood, E. E., *816
Ostow, M., 1553
Ott, R. H., Jr., *1221
Ottenheimer, E. J., 92
Oudot, J., 1265
Overholt, R. H., 969
Overstreet, J. W., 971
Owen, A. P., *377
Owen, S. G., 1482
Owens, R. H., 1172

P

Paalman, R. J., 874
Paci, A., 1281
Pagliei, A., 1180
Paillas, J.-E., 1486
Paley, R. G., 1562
Palmer, K. N. V., 192
Palmer, L. J., 275
Palmer, W. L., 649
Palumbo, L. T., 279
Pannier, R., 875
Papper, E. M., *1686
Paraf, J., 1485
Paraf, M., 1485
Pariser, H., *129
Park, A. M., 1173
Parker, J. M., 1267
Parma, A., 1381
Parrish, A. E., *1713
Parrott, R. H., 973
Parry, C. B. W., 766
Parshley, M. S., 191
Parsons, C. G., 1570
Parsons, H., 1660
Parturier-Albot, M., 1485
Passalacqua, C. de S. P., 1481
Passe, E. R. G., 1069
Paton, A., 1573
Patrikios, J. S., 1656
Patterson, J. L., Jr., *6
Paul, B. M., 283
Paulssen, M. M. P., 1482
da Paz, A. C., 1372
Peake, J. D., 1175
Pearson, J. S., 968
Peck, H., *1414
Pedowitz, P., 1473
Pelzer, L. R., 1661
Pelikan, E. W., 1173
Pellizzari, C., 1671, 1671
Pelmore, J. F., 282
Pembleton, W. E., 280
Pennell, R. B., *690
Perkins, R. B., 1376
Perlin, I. A., 1178
Perry, D. J., 1373
Perzik, S. L., 1377
Pescetti, G., 1179
Petri, H., 481
Petry, M., 1079
Pettenkofer, H. J., 367, 1079
Pfeffer, R. B., 1269
Pfeiffer, C. C., *1317
Pfister, F. C., 1277
Phelps, M. L., *1001
Phillips, C., 1569
Philpott, M. G., 766
Pierce, F. R., 1472
Pierret, P., 561
Pignard, P., 978
Pilla, L. A., 1568
Pineau, P., 193
Pipkin, D. E., 1568
Pirkey, E. L., 1568
Pischel, D. K., 1658
Pitts, F. W., *886, 968
Plachta, A., *678
Plaza de los Reyes, M., 1574
Plentl, A. A., 1565
Pokrzywnicki, S., 979
Poll, M., 1484
Pollak, O. J., 1663
Polley, H. F., *119
Pollock, B. E., 874
Pollock, G. H., 1066
Pollock, R. W., 1473
Poloukhine, N., 1574
Pomares Riquelme, A., 287
Poppendieck, K., 365
Porter, R. R., 280
Potter, R. M., 1567
Potts, W. J., 191
Powell, W. N., *1332
Pratt, G. H., *903
Preber, L., 770
Presson, L. F., 1467
Preston, E., III., 1662
Preston, R. H., *1428
Pribilla, W., 1480
Price, E. R., 1659
Prickman, L. E., *997, *1711
Priest, I. B., *856
Priestley, J. T., *808
Primiano, N. P., 558
Prioleau, W. H., 477
Prior, J. T., 1469
Prior, K. M., 560
Propp, S., *206
Provenzale, L., 1384
Provet, H., 1564
Pruitt, F. W., *573
Pullen, R. L., 1666
Purcell, E. M., 190
Putnam, T. J., *1400, 1656

Q

Quirin, L. F., 279

R

Rabbett, W. F., 1072
Rack, F. J., *516
Rackliffe, R. L., *1132
Raffensperger, E. C., *30
Ragan, C., 1465
Ramalingaswami, V., 361
Ramoino, L., 369
Ramqvist, N., 1384
Randall, C. L., *1030
Randolph, H., *38
Rappaport, B. Z., 88
Rascoff, H., *1134
Raspe, T., 977
Ratel, J., 561
Ratzan, W. J., 558
Rawson, A. J., *129
Reagan, R. L., 190
Record, R. G., 1477
Reed, C. E., *702
Reed, R. W., 1479
Rees, R. B., *1606
Refvem, O., 93
Regan, F. D., *15
Regato, J. A. del, 77
Rehn, E., 976
Reich, J. B., *1679
Reich, W. J., *1679
Reid, D. E., *227, 267
Reilly, R. H., *1317
Reiss, E., *1309, 1370
Reiss, F., 1652
Relman, A. S., 970
ReMine, W. H., *808
Reuling, J. R., *720
Reveno, W. S., *27
Reyer, W. A., 1168
Reymann, F., 980
Reynell, P. C., 1479
Reynolds, B. M., 1268
Reynolds, T. B., 1573
Rhea, R. L., Jr., 1471
Rhodes, G. J., 357
Ribas, E. B., 368
Rice, C. O., 972
Rice, W. G., 277
Richardson, E. M., 1378
Richardson, J. L., 88
Richarson, J. C., 1173
Richburg, P. L., *703
Richter, R. B., *1707
Ridenour, G. M., 359
Rider, J. A., *1707
Rienhoff, W. F., Jr. *687
Rigler, L. G., 1376
Rigdon, R. H., 191
Ringrose, E. J., *401
Rinzler, S. H., 1461
Ripstein, C. B., *610, (correction) 1058, *1093
Risser, J. A., 362
Ritchie, W. P., 1557
Ritter, U., 1379
Robecchi, A., 192
Robel, G., 1488
Roberts, H. K., 275
Roberts, M., *1231
Robinson, D. W., 1659
Robinson, H. S., 767
Robinson, M., 1736
Robson, H. N., 1076
Roby, C. C., *227, 267
da Rocha, R. M., *1103
Rodgers, D. L., 1173
Rodríguez-Arias, B., 1486
Rodstein, M., *987
Röhling, A., 1669
Rønnov-Jessen, V., 1672
Rognato, C., 876
Rohn, R. J., *501, 1371, 1655
Romansky, M. J., 87
Romney, R. B., 1734
Ronchese, F., 1732
Roodenburg, A. I., *33
Rose, H. M., 763
Rose, I., *402
Rose, O. A., *1221
Rosenbaum, H., *27
Rosenberg, D., 979
Rosner, D. C., 85
Rotach, F., 653
Roth, D., *230
Roth, J. L. A., *1228
Roth, L. G., 358
Roth, L. J., (correction) 1058
Roth, W., 1079
Rothenberg, S. F., *1400, 1656
Rothendler, H. H., 1369
Rotter, R., 364
Rowe, A. H., 1664
Rowe, A., Jr., 1664
Rozenfeld, I. H., *706
Ruben, J. E., 1067
Rubenstein, M. W., 558, *1679
Rubenstone, A. I., *914
Rubin, S., *1219
Rudd, C., 768
Ruebner, B., 1482
Ruedemann, R., *506
Ruffin, J. M., 649
Ruggieri, E., 1280
de Ruiter, K., 97
Rusk, H. A., 476
Russek, A. S., 1460
Russek, H. I., 551, 1460
Russell, B., 1670
Russell, N. G., *1030
Russell, S. J. M., 95
Russell, W. A., 286
Russo, G., 1480
Rutkowski, J., 979
Ryan, E. A., 1554

S

Sachs, F., *1213
Sachs, M. D., 1660
Sacket, W. W., Jr., 1176
Saenz, A., Jr., 1385
Sagild, U., *312
Saint, E. G., 1383
Saint-Pierre, H., *493
Sako, W., 1733
Salassa, R. M., *1509
Salkin, D., *1526
Salomon, L., 978
Salomon, M. I., 871
Samter, M., 88
Sancetta, S. M., 1265
Sander, I. W., 757
Sands, J. H., *886
Sanford, J. P., 1274
Santy, P., 1483
Sarkar, H. K., 96
Sarnoff, L. C., *208
Sarnoff, S. J., *208, 1661
Sauer, L. W., *1314
Saunders, J. W., 768
Sauvage, L. R., 1557
Sawyer, K. C., *567
Scarborough, W. R., 478
Scarcello, N. S., 961
Schaefer, J. H., 354
Schaefer, L. E., 1268
Schafer, P. W., *78, *554
Scheibe, F. W., 1282
Scheibner, H., 365

Schenken, J. R., *1619
Scherbel, A. L., 1463
Scherer, W. F., 273
Schiebel, H. M., 1464
Schildknecht, O., 1078
Schiller, F., 88
Schiller, I. W., 1270
Schimmel, N. H., 763
Schindler, R., *305
Schlack, H., 367
Schlan, L. S., 1466
Schlesinger, E. R., 1174
Schmidt, H., 1075, 1075
Schmitz, E. J., 1557
Schnabel, T. G., *1590
Schneider, J., 1280
Schneider, R., 976
Schönbauer, L., 1180
Schottstaedt, M. F., 1465
Schouten, J., 1736
Schulman, S., *1707
Schulsinger, F., 1489
Schulten, H., 1480
Schulz, M. D., 1375
Schulze, W., 1277
Schwartz, I. L., 969
Schwartz, J. A., *1526
Schwartz, S. P., 874
Schwartz, W. B., 970
Schwarz, A., *597
Scott, C. W., 873
Scott, J. M., 1278
Scudder, J., 1461
Sebrell, W. H., Jr., *42
Seed, L., 89
Seedorf, E. E., *1332
Seeley, S. F., 190
Sellick, B. A., 192
Selye, H., *1207
Selzer, A., 873
Sengupta, P., 1177
Serra, P., 1381
Sevringhaus, E. L., *1522
Shabart, E. J., 1470
Shapiro, M. W., 1660
Shapiro, S. J., *319
Shapiro, S. K., *608
Shaw, R. R., 1267
Sheldon, G. C., 1179
Shelley, W. B., *670
Sherber, D. A., *682
Sherlock, S., 1573
Shideman, F. E., 1173
Shields, W. E., *28
Shiney, M. L., 1734
Shirfrin, A., *1198, (correction) 1543
Shouldice, E. E., 1554
Shumway, C. N., 1174
Siddall, R. S., 267
Sidi, E., 1385
Sieber, W. K., 762
Siedhoff, W., 1489
Siegel, M., 1733
Siegenthaler, W., 99
Sienienski, J., 1274
Sigel, M. M., 362
Siguier, F., 770
Sigurdsson, B., *814
Siler, E. T., 1071
Silk, A. D., *305
Silver, G. A., 1175
Silverberg, R. J., 1067
Simmons, E. E., *1619
Simon, T., 1461
Sinclair, H. M., 361
Sirtori, C., 285
Skaggs, R. H., 1176
Skinner, H. L., *234
Slattery, L. R., *134
Slattery, R. V., *1595
Slaughter, D. P., 1568
Slocumb, C. H., *119
Smirk, F. H., 976
Smith, C. C., 1456
Smith, D. A., 1179
Smith, H. G. M., 1482
Smith, J. A., *384
Smith, J. E., 1659
Smith, J. G., (correction) 748
Smith, M. J., 1558
Smith, W. S., *792
Smithwick, R. H., 651, *1501
Smyth, C. J., *1106
Snaith, L. M., 1482
Snively, G. G., *1223
Snyder, H. B., 1369
Soave, F., 561
Søbye, P., 980
Søndergaard, T., 1275
Sohval, A. R., *1430
Sokoloff, L., 1656
Sokolow, M., 1465
Solanes, M. P., 1658
de Soldati, L., 1279
Solomon, D. H., *201
Solms, H., 1487
Soloff, L. A., *1530
Sommers, S. C., 1170
Sora, P., 287
Sorsby, A., 1277
Soulier, A., 2895
Soulier, J.-P., 1385
Sournia, J.-C., 1483
Southard, S. C., *1432
Southwick, H. W., 1568
Southwick, W. O., 276
Soutter, L., 92
Spain, D. M., 559
Speed, K., 1168
Spielberg, M., 1264
Spink, W. W., *585
Spitz, S., 87
Splithoff, C. A., *1610
Sprague, C. C., 1169
Sprague, R. G., *1509
Sprechler, M., 1275
Stearns, C. R., 1071
Stefanini, M., 1735
Steigman, A. J., 1067
Steim, H., 1575
Stein, F., *131
Stein, I. F., Sr., 85
Stein, S. C., *25
Steinbach, H. L., 1377
Steinbereithner, K., 1180
Steinberg, C. L., *33
Steinberg, I., *1216
Stempien, S. J., *1593
Stenn, F., 77, *915, (correction) 1156
Stepan, H., 1575
Stephenson, H. E., Jr., *500, 1269
Sterne, J., 1574
Stevens, H., 1470
Stewart, W. H., 1566
Stirman, J. A., *1309
Stodsky, B., *1714
Stoker, M. G. P., 1076
Stokes, J. Jr., *690
Stokinger, H. E., 1459
Stoner, R. D., 1668
Story, R. D., *312
Strakosch, E. A., 187
Strandtmann, R. W., 1569
Strange, J. E., 1733
Strano, A., 1281
Strazza, J. A., Jr., 183
Street, R. B., Jr., 1378
Strickler, J. H., 972
Strong, J. A., 1383
Strug, L. H., 1560
Stubbe, J. L., 1383
Stürup, G. K., *391
Stuhler, J. D., 1459
Stuhlfauth, K., 1382
Stuppler, A., 768
Suárez, M., 287
Suermondt, W. F., 1571
Sullivan, R. D., *308
Sulzberger, M. B., 1456
Suskind, R. R., 967
Svanteson, G., 1485
Swann, H. G., 479
Swenson, P. C., 273
Sylvest, B., 981
Sylvester, G. E., 1459
Syner, J., *1329
Szilagyi, N., 1069

T

Tacquet, A., 285
Taddei, C., 369
Taran, L. M., 1069
Tarpley, W., 1373
Taubenhaus, L. J., 1652
Tausig, T., *1317
Taylor, D. G., 366
Taylor, E. S., 1266
Taylor, R. D., *493
Taylor, R. R., 874
Têkinay, K., 284
Tempel, C. W., *886
Ten Pas, R. H., *212
Teng, H. C., 1656
Teng, P., 1074
Tepperberg, I., 358
Terplan, K., 1174
Terruzzi, B., 560
Tether, J. E., 1173
Texter, E. C., Jr., 649
The Tik Lok, 370
Theobald, G. W., 561
Theodore, F. H., *1631
Theron, P., 771
Thimann, K. V., 869
Thomas, E. W., 363
Thompson, C., *1228
Thompson, G. J., 971, 1561
Thompson, J. E., *1501
Thompson, S. A., *678
Thompson, W. A. L., 1479
Thordarson, O. T., *814
Thorne, N. A., 1670
Tice, G. M., 1071
Tingaud, M. R., 875
Tola, A., *913
Touraine, R. L., 978
Tovey, G. H., 1380
Townsend, J. H., 478
Townsend-Coles, W. F., 771
Traut, E. F., *1531
Travell, J., 1461
Trendelenburg, F., 365
Truex, R. C., 765
Trumbull, M. L., 1461
Tsuchitori, K., 1371
Tucker, W. H., 761
Tuft, L., 184
Turnipseed, D., 276
Turell, R., *136, *806
Tuttle, W. W., 1467
Tzanck, A., 978

U

Udell, L., *990
Ulett, G. A., 1659
Underdahl, L. O., 89
Unger, A. H., *1109
Unger, L., *1109
Unger, L. J., *1006
Unna, K. R., 1173
Uranga, J., 1672
Uricchio, J. F., *607
Urist, M. R., *127
Uyeyama, K., 1664

V

Valle, A. R., *812
van Beylen, C., 1177
van Creveld, S., 1179, 1482
van der Linden, P., 1570
Van Duyne, C. M., 1270
Vander Laan, W. P., *201
van Lingen, B., 968
van Loo, A., 875
Vander Veer, C. G., 874
van Wijk, T. W., 1464
Velasco, L. R., 1574
Véran, P., 1079
Verbiest, M., 1573
Verlinde, J. D., 1573
Vesterdal, J., 1275
Viel, V. B., 371
Villamil, A., 1282
Voegtlin, W. L., 1074
Voszschulte, K., 283
de Vries, L. A., 1383
Vuylsteek, K., 875

W

Wachsmann, F., 1488
Wachstein, M., *237
Wagner, R., 1379
Waithe, P. E., *208
Wakerlin, G. E., 1666
Waldbott, G. L., 967
Walk, L., 357
Walker, M. L., 191
Walker, P. E., 974
Wallace, H. M., *1506
Wallmark, G., 1384
Walter, L., 1568
Walter, W. A., 360
Walters, W., 357
Wannamaker, L. W., 189
Wang, C. C., 1375
Ward, D. E. Jr., 1276
Ward, G. H., 1378
Ward, L. E., *119
Waris, W., 1466
Warren, C. P., 1380
Warren, H., *700
Wartenberg, R., 184
Waskönig, H., 767
Wass, W. A., 1377
Wasser, S., *1134
Watkins, A. L., 1371, 1471
Watrous, R. M., *513
Watson, J. M., 93
Watson, J. R., *814
Watson, W. B., *1432
Watt, J., 1566
de Watteville, H., 98
Watts, M. S. M., *1192
Weber, L. F., 1655
Weckesser, E. C., *905
Weinberg, J. A., *1593
Weiner, A. E., *227, 267
Weiner, A. L., *705
Weingarten, W., *15
Weinmann, O., 195
Weinstein, L., 1560
Weinstein, M., *1231
Weinstein, P., 1658
Weiser, J., 1261, 1554
Weiser, O., *886
Weisman, S. A., *496, (correction) 950
Weiss, R. M., *610, (cor tion) 1058
Weiss, W., *25, *890
Weissbecker, L., 1575
Welch, G. E., 1567
Wellman, E. A., *702
Wells, J. T., 1670
Wels, P. B., 280
Welti, J.-J., 770
Welton, D. G., *1145
Werkö, L., 1382
Westerberg, M. R., 1173
Wetmore, P. W., 1660
Wharton, L. R., 1561
Whitacre, R. J., *1407
White, C. S., *1000
White, M., 368
White, P. D., *303
Whitfield, A. G. W., 768
Widdowson, E. M., 560
Widelock, D., 1661
Wiedeman, G. H., 1167
Wigh, R., 273
Wilbur, D. L., *1192
Wilcox, C., 190
Wilkerson, H. L. C., *1322
Willett, J. C., 1659
Williams, C., Jr., 92
Williams, D., 1274
Williams, J. M., 1470
Williams, J. W., *594, 1071
Williams, W. J., 480
Willson, J. R., 1266
Wilson, D. A. W., *22[illegible]
Wilson, H. B., 1459
Wilson, N. J., 969
Wilson, R. P., 977
Wingler, A., 1489
Wiringen, P., 766
Wissler, H., 979
Witten, V. H., 1456
Wolf, S., 1667
Wolfson, W. L., *910
Wood, E. E., 1380
Woods, A. C., Jr., *687
Woods, F. M., 969
Woolner, L. B., 89
Wooten, R. L., 559
Woringer, E., 1280
Workman, W. G., *1421
Wright, H. P., 1571
Wright, L. T., 970
Wright, S. S., 190
Wyatt, J. P., 146[illegible]
Wynder, E. L., 1072

Y

Yager, R. H., 1660
Yam[illegible], 1371
York, C. [illegible], *1704
York, D. J., 1738
Yorke, A., 1179
Young, D., *987
Young, F. H., 366

Z

Zacherl, H., 100
Zamora, M. M., 94
Zaslow, J., *1213, *1683
Zatuchni, J., *1530
Zatz, I., 1481
Zdanis, A. S., 1461
Ziffren, S. E., *994
Zoeckler, S. J., 1070, *1617
Zohman, B. L., 1460
Zivy, P., 1485
Zuppinger, A., 100
Zwerling, M. H., *216
Zwickel, R. E., *1031

INDEX TO PAGES

OF THE JOURNAL, ACCORDING TO WEEKLY ISSUES—VOLUME 152, MAY-AUGUST, 1953

Pages	No.	Date	Pages	No.	Date	Pages	No.	Date	Pages	No.	Date
1-108	1	May 2	485-566	6	June 6	883-986	10	July 4	1293-1396	14	August
109-200	2	May 9	567-656	7	June 13	987-1084	11	July 11	1397-1500	15	August 8
201-296	3	May 16	657-776	8	June 20	1085-1184	12	July 18	1501-1586	16	August 15
297-376	4	May 23	777-882	9	June 27	1185-1292	13	July 25	1587-1678	17	August 22
377-484	5	May 30							1679-1806	18	August

Hospital Number: May 9 State Board Number: May 30 Postgraduate Courses Number: June 13

Proceedings New York Meeting: June 20, June 27, July 4